ITU Library reading list for October 2017

ITU Library makes a monthly selection of online articles/reports/e-books selected from its electronic subscriptions to journals and databases - on topics of interest to ITU Staff and work.

All lists are also stored on our library guide: [http://libraryguides.itu.int/library/reading](http://libraryguides.itu.int/library/reading)

Please suggest topics you wish to add to our bibliographies ([library@itu.int](mailto:library@itu.int))

---

**Table of Contents**

- Bibliography on “5G mobile” ................................................................. 2
- Bibliography on “accessibility and ICTs” .................................................. 5
- Bibliography on “big data” ...................................................................... 8
- Bibliography on “broadband” ................................................................. 12
- Bibliography on “child online protection” ............................................... 13
- Bibliography on “climate change and ICTs” .......................................... 14
- Bibliography on “cybersecurity” ............................................................. 15
- Bibliography on “digital divide” .............................................................. 19
- Bibliography on “digital economy” ......................................................... 21
- “Bibliography on “e-Government” .......................................................... 24
- Bibliography on “e-Health” .................................................................... 28
- Bibliography on “emergency communication” ....................................... 30
- Bibliography on “gender” ............................................................................ 31
- Bibliography on “ICT for development (ICT4D)” .................................. 35
- Bibliography on “intelligent transportation systems (ITS)” ...................... 37
- Bibliography on “internet of things (IoT)” ............................................. 40
- Bibliography on “regulatory/statistical report” ...................................... 47
- Bibliography on “satellite communications” ......................................... 52
- Bibliography on “semantic web” ............................................................ 54
- Bibliography on “smart cities” ............................................................... 57
- Bibliography on “social media” ............................................................. 63
- Bibliography on “Spectrum management/Spectrum sharing” ................... 66
Bibliography on “5G mobile”

doi: 10.1109/ACCESS.2017.2684783.
http://dx.doi.org/10.1109/ACCESS.2017.2684783.

**ABSTRACT:** To address the vast variety of user requirements, applications, and channel conditions, flexibility support is strongly highlighted for 5G radio access technologies (RATs). For this purpose, usage of multiple orthogonal frequency division multiplexing (OFDM) numerologies, i.e., different parameterization of OFDM-based subframes, within the same frame has been proposed in the third-generation partnership project discussions for 5G new radio. This concept will likely meet the current expectations in multiple service requirements to some extent. However, since the quantity of wireless devices, applications, and heterogeneity of user requirements will keep increasing toward the next decade, the sufficiency of the aforementioned flexibility consideration remains quite disputable for future services. Therefore, novel RATs facilitating much more flexibility are needed to address various technical challenges, e.g., power efficiency, massive connectivity, latency, spectral efficiency, robustness against channel dispersions, and so on. In this paper, we discuss the potential directions to achieve further flexibility in RATs beyond 5G, such as future releases of 5G and 6G. In this context, a framework for developing flexible waveform, numerology, and frame design strategies is proposed along with sample methods. We also discuss their potential role to handle various upper-level system issues, including the ones in orthogonal and nonorthogonal multiple accessing schemes and cellular networks. By doing so, we aim to contribute to the future vision of designing flexible RATs and to point out the possible research gaps in the related fields.

doi: 10.1109/ACCESS.2017.2752741.
http://dx.doi.org/10.1109/ACCESS.2017.2752741.

**ABSTRACT:** Sparse code multiple access (SCMA), as a promising non-orthogonal multiple access scheme for the 5G system, aims to achieve massive connections and grant-free transmission in the radio access scenario. In this paper, we propose a blind detection scheme for the uplink grant-free SCMA transmission based on a novel sparsity-inspired sphere decoding (SI-SD) algorithm. By introducing one additional all-zero code word, each user’s status and data can be jointly detected, thus avoiding the redundant pilot overhead. Considering the sparsity features in the grant-free SCMA transmission, we establish its mathematical model where the degree of sparsity is characterized by a transmission probability parameter, which will be estimated during the SI-SD detection process. With such a priori probability, the proposed SI-SD algorithm will achieve the maximum a posteriori (MAP) detection. Furthermore, unlike the conventional sphere decoding, in the grant-free SCMA scenario, strong constraints are proven to exist among the nodes in the proposed SI-SD algorithm which can be utilized to early remove some improbable transmit hypotheses. In addition, a reduced sparsity-inspired MAP metric constitutes a tight sphere constraint which in turn implies less valid hypotheses within the search sphere. By using the above two strategies, the complexity of the SI-SD can be efficiently reduced.
ABSTRACT: The articles in this special section address smart energy applications from the perspective of the Internet of Things (IoT). For smart grid applications, we need to predict the electrical load so that the underlying smart grid can effectively balance the power supply and demand. In general, predictions are made based on the data obtained using IoT and smart meter technologies. The (IoT) could accelerate establishment of such infrastructures. With IoT technologies, many more devices could be controlled and managed through the Internet; data pertaining to the grid, commercial buildings, and residential premises can readily be collected and utilized. To derive valuable information from the data, further information and data processing become essential.

ABSTRACT: With the transition toward 5G, mobile cellular networks are evolving into a powerful platform for ubiquitous large-scale information acquisition, communication, storage, and processing. 5G will provide suitable services for mission-critical and real-time applications such as the ones envisioned in future smart grids. In this work, we show how the emerging 5G mobile cellular network, with its evolution of machine-type communications and the concept of mobile edge computing, provides an adequate environment for distributed monitoring and control tasks in smart grids. In particular, we present in detail how smart grids could benefit from advanced distributed state estimation methods placed within the 5G environment. We present an overview of emerging distributed state estimation solutions, focusing on those based on distributed optimization and probabilistic graphical models, and investigate their integration as part of the future 5G smart grid services.

ABSTRACT: There has been active research worldwide to develop the next generation, i.e., fifth generation, wireless network. Next generation mobile communication networks are broadening their spectrum to higher frequency bands (above 6 GHz) to support a high data rate up to multigigabits per second. This work examines how to substantially improve energy efficiency for next fifth generation mobile communication systems. It is depicted how by limited exchange of information between neighboring base stations it is possible to maintain quality of service, over a range of traffic loads, while enabling inactive base stations to sleep. Performance of distributed energy efficient topology management schemes are compared against the system without topology management. Performance evaluation is examined using both analytical and simulation based models. Extensive numerical results show that the schemes deliver a significant energy reduction in energy consumption in the mobile network systems.
discusses the main characteristics of D2D communication including its usage scenarios, architecture, technical features, and areas of active research.

ABSTRACT: Underlaying Device-to-Device (D2D) communications can increase the spectral efficiency of cellular networks when sharing part of the spectrum with cellular users. This requires radio resource allocation policies capable to limit and control the interference between D2D and cellular communications. Many of the proposed policies are centralized, and require the base station to decide which resources should be allocated to each D2D transmission. Centralized schemes can efficiently control interference levels, but their feasibility can be compromised by their complexity and signaling overhead. To address this constraint, this paper proposes DiRAT, a distributed radio resource allocation scheme for D2D communications underlaying cellular networks. With DiRAT, the D2D nodes locally select their radio resources from a pool created by the cellular network in order to control the interference generated to the primary cellular users. DiRAT includes a control mechanism to ensure that the user QoS requirements are satisfied. This study demonstrates that DiRAT can increase the network capacity while avoiding or limiting the degradation of the performance of the primary cellular users. DiRAT also significantly reduces the complexity and overhead compared to existing centralized and distributed schemes.

ABSTRACT: The upcoming 5G era emphasizes on a dramatic increase in the transmission rate of smartphone traffic. With more users operating at high rates, the type of data shared over the network is going to be complex and a majority of it will include video traffic. Such complex structure of traffic and heavy load over the components of the network are difficult to control. Further, the mobility of users adds up to this issue and makes it difficult to manage and operate the network without any breakdown. Thus, it important to control traffic as well as manage the mobility of users to provide efficient communication, which can support video traffic at high delivery rates. This paper proposes a novel resource-based mobility management approach for 5G networks comprising video users. A novel resource sharing paradigm, termed as "Catalytic Computing", provides efficient management of user mobility as well as network resources. The proposed approach relies on Homogeneous discrete Markov model for user mobility patterns and a novel n-step algorithm for congestion prediction and selection of optimal routes between the serving terminals. An activation energy based handover mechanism is also presented in this paper, which reduces the handover latency in comparison with the existing solutions. The evaluation presented in the paper suggests that the proposed approach provides a minimum of 5.9 ms, maximum of 9.1 ms and an average of 6.5 ms latency during handoffs.

doi: 10.1109/JIOT.2017.2726014.
http://dx.doi.org/10.1109/JIOT.2017.2726014.
ABSTRACT: Wireless sensor network (WSN) systems are typically composed of thousands of sensors that are powered by limited energy resources. To extend the networks longevity, clustering techniques have been introduced to enhance energy efficiency. This paper presents a survey on clustering over the last two decades. Existing protocols are analyzed from a quality of service (QoS) perspective including three common objectives, those of energy efficiency, reliable communication and latency awareness. This review reveals that QoS aware clustering demands more attention. Furthermore, there is a need to clarify how to improve quality of user experience
(QoE) through clustering. Understanding the users’ requirements is critical in intelligent systems for the purpose of enabling the ability of supporting diverse scenarios. User awareness or user oriented design is one remaining challenging problem in clustering. In additional, this paper discusses the potential challenges of implementing clustering schemes to Internet of Things (IoT) systems in 5G networks. We indicate that clustering techniques enhanced with smart network selection solutions could highly benefit the QoS and QoE in IoT. As the current studies for WSNs are conducted either in homogeneous or low level heterogeneous networks, they are not ideal or even not able to function in highly dynamic IoT systems with a large range of user scenarios. Moreover, when 5G is finally realized, the problem will become more complex than that in traditional simplified WSNs. Several challenges related to applying clustering techniques to IoT in 5G environment are presented and discussed.

ABSTRACT: The dramatic increasing demand for video from mobile users (MU) has imposed huge pressure on cellular networks. By using the millimeter wave (mmWave) technique, the fifth generation (5G) networks can provide rich bandwidth to satisfy the requirements for high quality mobile video and alleviate the traffic pressure. However, the shorter transmission range of mmWave leads mobile users in 5G network suffer frequent handoffs and long connection delays which degrades the Quality of Experience (QoE) for mobile video users. How to improve QoE for mobile video users has become a crucial challenge. Information-centric-networking (ICN) is a promising paradigm to mitigate this challenge as its in-network caching can bring videos closer to users, which can reduce network traffic and video retrieval delay significantly. In this paper, we propose an ICN-based caching approach that considers both the mobility of users and the popularity of videos. While user mobility has rarely been considered in existing works, in this paper, user mobility is exploited to reduce the retrieval delay caused by frequent handoffs. Videos can be retrieved from the router which is directly connected to the base station (BS) instead of the original content provider when a handoff happens. Consequently, the retrieval delay caused by frequent handoffs can be significantly reduced. Simulations results show that our ICN-based approach outperforms the traditional IP-based RAN caching and the cooperation-driven ICN-based caching scheme (CDIC) in terms of retrieval delay and network traffic deduction. ".

Bibliography on “accessibility and ICTs”

ABSTRACT: A gaze-controlled system was developed to address the specific needs of a person in an advanced stage of Multiple Sclerosis. This patient scored 9 on the EDSS and is representative of a group of patients who can reason normally, but have no functional use of their upper-limbs. The developer and the patient were connected through remote desktop control and could brainstorm a concept to perfection through iterative trial and error. The most important lesson learnt is the importance of user control towards maximum independence. Eventually, the patient was enabled to control his computer efficiently using a novel approach to mouse control together with an on-screen keyboard. He could browse the internet, read e-books, type documents, send and receive e-mails and text messages, draw in a paint application and control his TV through a specially adapted remote control—all by using his eyes to activate commands. The findings
suggest that a well-designed eye tracking system can fulfill in the mental and communication needs of patients in this specific category of disability.

https://doi.org/10.1007/s10209-016-0501-0.
ABSTRACT: To date, guidelines for designing inclusive dyslexia-friendly online learning environments, which take into consideration both learners with and without dyslexia, are still scarce. As web text is one of the extensively used elements in online learning, this study aims to derive practical guidelines on this aspect by exploring the experience of learners with dyslexia and learners without dyslexia when using different online reading affordances. The study employed a within-subjects qualitative study and key patterns that emerged from the data collected via observations and interviews were interpreted based on two important aspects of learning experience, which were perceived learning and engagement. The study reveals that (1) the direct application of Printed Text on the web should be carefully considered, (2) existing web accessibility guidelines (limit to guidelines examined in this study) are appropriate and (3) the use of a Screen Reader for online reading should not be made compulsory and be available as an option instead. The comparison between the experience of learners with and without dyslexia in this study has yielded insights into affordances that are perceived positively by both groups of learners. As learners with dyslexia form a significant minority of the online learning population, the inclusive dyslexia-friendly guidelines derived from this study would better inform the future implementation of online reading affordances that acknowledge differences and similarities between online learners.

ABSTRACT: Among a variety of disabilities, persons with achondroplasia, i.e., little people, have relatively minor symptoms though they have small bodies. Thus, they can learn how to lead an independent life. This paper presents a study on the development of a multimedia encyclopedia for little people and their families. Due to their different roles, this study examines how little people and their families reacted to the multimedia encyclopedia. In total, 18 little people and 15 family members participated in this study. Their interaction behavior was recorded in log files and their perceptions were identified by a questionnaire. The results indicated that little people preferred to use a search mechanism while their family members favored to use pop-up windows. Either little people or their families thought that the multimedia encyclopedia provided some new information that they did not know. However, family members’ attention, confidence and satisfaction with the multimedia encyclopedia were higher than those of the little people. This study can contribute to the knowledge of how to develop individualized multimedia encyclopedias that can accommodate the different preferences of little people and their family members.

ABSTRACT: In case of emergency, hearing-impaired people are not always able to access emergency services, and hence, they do not have equal access to social support and infrastructure. In this work, we describe an action research study that undertakes the development and evaluation of a system aiming to meet the communication needs of hearing-impaired citizens in cases of emergency. The system consists of (1) a mobile application that records and sends the details of an emergency event and (2) a central management system that handles these calls from the operation center at the emergency services. The system was completed in four cycles of design, development and evaluation with the involvement of 74
http://doi.acm.org/10.1145/3075300.
ABSTRACT: We describe two experiments with a system designed to facilitate the use of mobile optical character recognition (OCR) by blind people. This system, implemented as an iOS app, enables two interaction modalities (autoshot and guidance). In the first study, augmented reality fiducials were used to track a smartphone’s camera, whereas in the second study, the text area extent was detected using a dedicated text spotting and text line detection algorithm. Although the guidance modality was expected to be superior in terms of faster text access, this was shown to be true only when some conditions (involving the user interface and text detection modules) are met. Both studies also showed that our participants, after experimenting with the autoshot or guidance modality, appeared to have improved their skill at taking OCR-readable pictures even without use of such interaction modalities.

http://doi.acm.org/10.1145/3134227.
ABSTRACT: Virtual worlds are used in wide-ranging ways by many people with long-term health conditions, but their use by people with aphasia (PWA) has been limited. In contrast, this article reports the use of EVA Park, a multi-user virtual world designed for PWA to practice conversations, focusing on people’s emotional, social, and conversational experiences. An analysis of observation and interview data collected from 20 people with aphasia who participated in a 5-week therapy intervention revealed key themes related to user experience. The themes offer a rich insight into aspects of the virtual world experience for PWA that go beyond therapeutic outcomes. They are as follows: affect (positive and negative); types of conversation, miscommunication, and misunderstanding; immersion in the virtual world; social presence and initiative and flow. Overall, the study showed that participants experienced positive emotional and social outcomes. We argue that this was achieved as a consequence of EVA Park being not only accessible but also a varied and entertaining environment within which PWA experienced both the realistic and the quirky while engaging with others and having fun.

https://doi.org/10.1007/s10209-016-0490-z.
ABSTRACT: Government Web sites aim to provide information to the citizens of the country; therefore, they should be accessible, easy to use and visible via search engines. Based on this assumption, in this paper, the ministry Web sites of four countries namely the Kyrgyz Republic, the Republic of Azerbaijan, the Republic of Kazakhstan and the Republic of Turkey were analyzed in terms of accessibility and quality in use. Tests were carried out utilizing online automated tools. Results indicate that the usage rate of Information and Communication Technologies by the government is higher in Turkey, which affects the visibility of government Web sites but not their quality in use. Very few ministry Web sites of the four countries achieved AA conformance level on accessibility, many failed to pass conformance level A and AA checkpoints for accessibility errors. In order to ensure equal access to all their citizens, the countries in this study need to put more emphasis on designing government Web sites to be more accessible.
http://doi.acm.org/10.1145/3085957.
ABSTRACT: Video games are not just played for fun; they have become a handy instrument for the cognitive, emotional, and social development of children. However, several barriers prevent many children with disabilities from playing action-oriented video games, alone or with their peers. In particular, children with severe motor disabilities, who rely on one-switch interaction for accessing electronic devices, find fast-paced games that require rapid decision-making and timely responses, completely unplayable. This article contributes to lowering such barriers by presenting GNomon (Gaming NOMON), a software framework based on the NOMON mode of interaction that allows the creation of action-oriented single-switch video games. The article reports the results of two studies that evaluate the playability and rehabilitation suitability of GNomon-based video games. The playability of GNomon-based games is evaluated by assessing their learnability, effectiveness, errors, satisfaction, memorability, and enjoyability with a group of eight children with severe motor disabilities. The suitability for pediatric rehabilitation is determined by means of a focus group with a team of speech therapists, physiotherapists, and psychologists from a Local Health Agency in Turin, Italy. The results of the playability study are positive: All children had fun playing GNomon-based video games, and seven of eight were able to interact and play autonomously. The results of the rehabilitation-suitability study also entail that GNomon-based games can be exploited in training hand-eye coordination and maintenance of selective attention over time. The article finally offers critical hindsight and reflections and shows possible new future game concepts.

http://doi.acm.org/10.1145/3107925.
ABSTRACT: Technology-based social skills interventions have shown promise for people with Autism Spectrum Disorder (ASD), a neurodevelopmental disorder characterized by impairments in social interaction and communication. Primary advantages of a technology-based approach to intervention relate to consistency of service delivery as well as an ability to quantitatively measure process and outcomes. Despite these strengths, however, many current computer-supported systems rely on survey data or data collected post-interaction. In response, we have developed and pilot-tested DOSE (Dyad-Operated Social Encouragement), a novel game and data acquisition platform for collaborative skills intervention that leverages the ability of software to collect time-series, speech audio, and event information for the purposes of finer-grained analyses of dyadic interactions. A pilot study involving 12 participant dyads—comprised of children with ASD and typically developing (TD) peers (6 ASD-TD dyads and 6 TD-TD dyads)—was conducted and several metrics were computed during interactions. Preliminary results suggest that the DOSE system is engaging to users, is capable of collecting a wide range of quantitative process measures, and that post-training measures show preliminary evidence of increased communication and activity coordination. Furthermore, DOSE has been made open-source, allowing other investigators to use and extend DOSE for a variety of applications.

Bibliography on “big data”

doi: 10.1109/ICITECH.2017.8080062
http://dx.doi.org/10.1109/ICITECH.2017.8080062
ABSTRACT: Rapid moving in the technology and the need to respond to the massive changes in the big data create another challenge for the government to make the deal with a huge amount of data easier and to implement effectively multi-channel platforms for digital transformation.
The need for technology such as social media, e-participation tools and new models of open data to generate big data also have added to these challenges, in addition to the slow adoption of the public sector and citizens for these new concepts of openness and effective interaction through electronic technology. For citizen's improvements the e-participation processes, government innovations, and citizen satisfaction governments need to enhance the collaboration and engagement. As well, it needs to improve the value that delivers inside and outside of government sectors also satisfies the citizens' demands for better services by collecting data from citizens' activities. When e-government utilizing the big data technologies, which offers a new effective technology to provide interactive services, the e-government will be more than just a big and more than just a data. The term of "Big data" must be used in e-government. In this paper, the authors explore a review in big data issues that applied to e-government as well as challenges and issues facing these agencies and proposed a possible solution for the challenges of implementing big data in e-government. Most of the recently published papers clearly show that the challenges are difficult and the growing in terms of big data is increasing exponentially.


ABSTRACT: Benefits of Internet of Things and cloud-fog-edge computing are associated with the risks of confidentiality, integrity, and availability related with the loss of information, denial of access for a long time, information leakage, conspiracy and technical failures. In this article, we propose a configurable, reliable, and confidential distributed data storage scheme with the ability to process encrypted data and control results of computations. Our system utilizes Redundant Residue Number System (RRNS) with new method of error correction codes and secret sharing schemes. We introduce the concept of an approximate value of a rank of a number (AR), which allows us to reduce the computational complexity of the decoding from RNS to binary representation, and size of the coefficients. Based on the properties of the approximate value and arithmetic properties of RNS, we introduce AR-RRNS method for error detection, correction, and controlling computational results. We provide a theoretical basis to configure probability of information loss, data redundancy, speed of encoding and decoding to cope with different objective preferences, workloads, and storage properties. Theoretical analysis shows that by appropriate selection of RRNS parameters, the proposed scheme allows not only increasing safety, reliability, and reducing an overhead of data storage, but also processing of encrypted data. ".


ABSTRACT: Increased intelligence and automation in smart grid results in many heterogeneous applications benefiting from the Internet of Things, such as demand response, energy delivery efficiency/reliability, and fault recovery. However, vulnerabilities in smart grid arise due to public communication infrastructure and Internet-based protocols. To deal with security threats, energy big data should be thoughtfully stored and processed to extract critical information, and security and blackout warnings should be given in an early stage. This work gives a comprehensive tutorial and survey to highlight research challenges on the aforementioned issues in the Internet-of-Things-based smart grid. We demonstrate that a stealthy and blind energy big data attack can be launched using a replay scheme. Also, we elucidate an intuitive geometric viewpoint for this type of attack. The proposed attack can bypass bad data detection successfully using either DC or AC state estimation.

ABSTRACT: The articles in this special section address smart energy applications from the perspective of the Internet of Things (IoT). For smart grid applications, we need to predict the electrical load so that the underlying smart grid can effectively balance the power supply and demand. In general, predictions are made based on the data obtained using IoT and smart meter technologies. The (IoT) could accelerate establishment of such infrastructures. With IoT technologies, many more devices could be controlled and managed through the Internet; data pertaining to the grid, commercial buildings, and residential premises can readily be collected and utilized. To derive valuable information from the data, further information and data processing become essential.


http://dx.doi.org/10.1109/ICITECH.2017.8079997

ABSTRACT: In the digital era, the Big Data concept started to play a tremendous role in the public sector. Jordan started an E-Government program to provide citizens with electronic services. In this paper; the role of Open Big Data in the Jordanian public sector is discussed. We will evaluate the E-Government program in Jordan which is the driver behind collecting Big Data and making it available for its citizens. A model is introduced to enhance the usage of Big Data with the National Center for Security and Crises Management (NCSCM) playing a leading role.


ABSTRACT: As a new term in the financial industry, FinTech has become a popular term that describes novel technologies adopted by the financial service institutions. This term covers a large scope of techniques, from data security to financial service deliveries. An accurate and up-to-date awareness of FinTech has an urgent demand for both academics and professionals. This work aims to produce a survey of FinTech by collecting and reviewing contemporary achievements, by which a theoretical data-driven FinTech framework is proposed. Five technical aspects are summarized and involved, which include security and privacy, data techniques, hardware and infrastructure, applications and management, and service models. The main findings of this work are fundamentals of forming active FinTech solutions.


ABSTRACT: Big data has been considered to be a breakthrough technological development over recent years. Notwithstanding, we have as yet limited understanding of how organizations translate its potential into actual social and economic value. We conduct an in-depth systematic review of IS literature on the topic and identify six debates central to how organizations realize value from big data, at different levels of analysis. Based on this review, we identify two socio-technical features of big data that influence value realization: portability and interconnectivity. We argue that, in practice, organizations need to continuously realign work practices, organizational models, and stakeholder interests in order to reap the benefits from big data. We synthesize the findings by means of an integrated model. ".

ABSTRACT: To tackle the increasing challenges of agricultural production, the complex agricultural ecosystems need to be better understood. This can happen by means of modern digital technologies that monitor continuously the physical environment, producing large quantities of data in an unprecedented pace. The analysis of this (big) data would enable farmers and companies to extract value from it, improving their productivity. Although big data analysis is leading to advances in various industries, it has not yet been widely applied in agriculture. The objective of this paper is to perform a review on current studies and research works in agriculture which employ the recent practice of big data analysis, in order to solve various relevant problems. Thirty-four different studies are presented, examining the problem they address, the proposed solution, tools, algorithms and data used, nature and dimensions of big data employed, scale of use as well as overall impact. Concluding, our review highlights the large opportunities of big data analysis in agriculture towards smarter farming, showing that the availability of hardware and software, techniques and methods for big data analysis, as well as the increasing openness of big data sources, shall encourage more academic research, public sector initiatives and business ventures in the agricultural sector. This practice is still at an early development stage and many barriers need to be overcome.


ABSTRACT: Companies currently have to deal with profound changes in the way they manage their business, their customers and their business models, since they are overrun by a data-driven revolution in management. This revolution is due to the wide availability of big data and the fast evolution of big data technologies. Big data is recognized as one of the most important areas of future technology, and is fast gaining the attention of many industries, since it can provide high value to companies. This article investigates the adoption levels of big data technologies in companies, and the big data sources used by them. This article also points out the most frequently recognized strategic, transactional, transformational and informational benefits and risks related to the usage of big data technologies by companies. In order to achieve these aims, the paper looks at the differences that exist among companies of different sizes, by comparing medium-sized and large companies, and the differences among companies of different industrial sectors. It provides evidence that only in a few cases these differences are significant. This study could serve as a reference for managers who wish to initiate an evaluation cycle on the adoption and usage of big data technologies. ".

https://doi.org/10.1016/j.pmcj.2017.03.013.

ABSTRACT: With the accelerated process of urbanization, more and more people tend to live in cities. In order to deal with the big data that are generated by citizens and public city departments, new information and communication technologies are utilized to process the urban data, which makes it more easier to manage. Cloud computing is a novel computation technology. After cloud computing was commercialized, there have been lot of cloud-based applications. Since the cloud service is provided by the third party, the cloud is semi-trusted. Due to the features of cloud computing, there are many security issues in cloud computing. Attribute-based encryption (ABE) is a promising cryptography technique which can be used in the cloud to solve many security issues. In this paper, we propose a framework for urban data sharing by exploiting the attribute-based cryptography. In order to fit the real world ubiquitous-cities utilization, we extend our scheme to support dynamic operations. In particular, from the part of performance analysis, it can be concluded that our scheme is secure and can resist possible
attacks. Moreover, experimental results and comparisons show that our scheme is more efficient in terms of computation.


ABSTRACT: This study combines programming and data mining to analyze consumer reviews extracted from Yelp.com to deconstruct the hotel guest experience and examine its association with satisfaction ratings. The findings show many important factors in customer reviews that carry varying weights and find the meaningful semantic compositions inside the customer reviews. More importantly, our approach makes it possible to use big data analytics to find different perspectives on variables that might not have been studied in the hospitality literature.


ABSTRACT: Due to the pervasive diffusion of personal mobile and IoT devices, many "smart environments" (e.g., smart cities and smart factories) will be, among others, generators of huge amounts of data. To provide value-add services in these environments, data will have to be analysed to extract knowledge. Currently, this is typically achieved through centralised cloud-based data analytics services. However, according to many studies, this approach may present significant issues from the standpoint of data ownership, and even wireless network capacity. One possibility to cope with these shortcomings is to move data analytics closer to where data is generated. In this paper we tackle this issue by proposing and analysing a distributed learning framework, whereby data analytics are performed at the edge of the network, i.e., on locations very close to where data is generated. Specifically, in our framework, partial data analytics are performed directly on the nodes that generate the data, or on nodes close by (e.g., some of the data generators can take this role on behalf of subsets of other nodes nearby). Then, nodes exchange partial models and refine them accordingly. Our framework is general enough to host different analytics services. In the specific case analysed in the paper we focus on a learning task, considering two distributed learning algorithms. Using an activity recognition and a pattern recognition task, both on reference datasets, we compare the two learning algorithms between each other and with a central cloud solution (i.e., one that has access to the complete datasets). Our results show that using distributed machine learning techniques, it is possible to drastically reduce the network overhead, while obtaining performance comparable to the cloud solution in terms of learning accuracy. The analysis also shows when each distributed learning approach is preferable, based on the specific distribution of the data on the nodes.

Bibliography on “broadband”


ABSTRACT: In February 2010, Google challenged US cities to compete for being the site of its first attempt at building ultra-high-speed fiber-to-the-premises (FTTP) network, promising speeds up to one hundred times faster than pre-existing broadband services. More than 1100 cities applied. Kansas City, however, was announced as the winner of the competition. This paper
explores the rollout of Google Fiber in Kansas City from three different perspectives. First, we provide a close examination of urban governance and the Fiber project – highlighting numerous regulatory concessions and incentives provided to Fiber during the construction phase. Second, we explore the ways in which pre-existing digital divides and socio-economic inequalities impacted the Fiber plan for Kansas City. Finally, in an effort to better understand the geographic intricacies of Fiber service, this paper uses a novel data mining technique and exploratory spatial data analysis to highlight the provision footprints for two counties in the Kansas City metropolitan area. We conclude with a discussion of the salient policy implications of projects like Fiber for urban governance, highlighting both the promises and stark realities of such ventures.


ABSTRACT: Although in-band full-duplexing (IBFD) has long been implemented in various communication media, it was only recently that an IBFD solution was presented for broadband power line communications (BB-PLCs). The maximum attainable echo suppression using this solution is, however, limited by the dynamic range of the analog-to-digital converter (ADC). To counter this critical constraint, we propose echo cancellation in the analog domain, while persisting with a low-complexity frequency domain digital echo estimation. By formulating an expression for the number of ADC bits lost in IBFD over a conventional half-duplex operation, we show that the ADC dynamic range is no longer a limiting factor for our solution. We further extend our solution to present an analog cancellation method for multiple-input multiple-output IBFD BB-PLC systems. Finally, we present simulation results of echo cancellation and data rate gains obtained under realistic in-home BB-PLC settings, to demonstrate that our solution is capable of doubling bidirectional transfer rates in a large number of the tested network conditions.

Bibliography on “child online protection”


ABSTRACT: Cyberbullying is a social phenomenon which can bring severe harm to victims. Bystanders can show positive bystander behavior (e.g. defending) and decrease cyberbullying and its harm, or negative behavior (e.g. passive bystanding, joining) and sustain cyberbullying and its negative effects. Few interventions have currently targeted bystanders and evaluated results on their behavior or its determinants. The intervention consisted of a serious game specifically targeting cyberbullying bystander behavior. A cluster-randomized controlled trial was conducted among 8th graders (n = 216) in two schools. Measurements were taken at baseline, immediately after the intervention and at 4-week follow-up. The serious game intervention resulted in significant improvements in self-efficacy, prosocial skills, and the intention to act as a positive bystander. These are mainly predictors of positive bystander behavior. No significant effects were found for predictors of negative bystander behavior. The intervention also increased witnessing of cyberbullying incidents, potentially a measure of awareness of cyberbullying taking place, and quality of life. No effects were found on behavior itself, bullying or cyberbullying prevalence. This brief serious game intervention affected determinants of bystander behavior and quality of life among adolescents. Further efforts are needed to address (negative) bystander behavior and cyberbullying involvement.
https://doi.org/10.1016/j.chb.2017.10.015.
ABSTRACT: Fueled by tragic incidents worldwide, many studies have investigated dispositional factors that lead to virtual abuse and cyberbullying. In contrast to this, less extreme forms of uncivil online behavior have received only little attention. The current paper strives to overcome this research gap by focusing on uncivil commenting intentions in public Facebook discussions. We presented controversial online comments to a convenient student sample of 256 Facebook users asking them to consider their likely response on several scales ranging from a functional to a uncivil style of reasoning. Users’ intended commenting was then linked to several personality traits (Big Five, Dark Triad, sensation seeking, and impulsivity) and their Facebook intensity. Analyses revealed openness, agreeableness, and experience seeking as negative predictors of participants’ intention to comment uncivilly, whereas attentional impulsivity, boredom susceptibility as well as intense Facebook use emerged as positive predictors. No connections were found for the Dark Triad. Possible explanations for these effects are discussed.

Bibliography on “climate change and ICTs”

ABSTRACT: Abstract This study examines how increasing ICT penetration in sub-Saharan Africa (SSA) can contribute towards environmental sustainability by decreasing CO2 emissions. The empirical evidence is based the Generalised Method of Moments and forty-four countries for the period 2000–2012. ICT is measured with internet penetration and mobile phone penetration while CO2 emissions per capita and CO2 emissions from liquid fuel consumption are used as proxies for environmental degradation. The following findings are established: First, from the non-interactive regressions, ICT (i.e. mobile phones and the internet) does not significantly affect CO2 emissions. Second, with interactive regressions, increasing ICT has a positive net effect on CO2 emissions per capita while increasing mobile phone penetration alone has a net negative effect on CO2 emissions from liquid fuel consumption. Policy thresholds at which ICT can change the net effects from positive to negative are computed and discussed. These policy thresholds are the minimum levels of ICT required, for the effect of ICT on CO2 emissions to be negative. Other practical implications for policy and theory are discussed.

ABSTRACT: This paper develops a dynamic two-good (clean and dirty goods), two-sector model to explore the implications of the macroeconomic environmental rebound/backfire effect for environmentally-friendly product promotions on not only the demand side (a subsidy on the clean-good consumption), but also the supply side (a technology promotion in the clean-good production). The macroeconomic environmental rebound/backfire is decomposed into three effects – the substitution, wealth, and sectoral reallocation effects. We show that the steady-state pollution stock exhibits a U-shaped relationship with either demand-side or supply-side green promotions. Our calibrated result indicates that in terms of pollution, the macroeconomic rebound effect for the economy as a whole appears to be substantial. More pronounced rebound effects are present when the elasticity of substitution between the clean- and dirty-good consumption is
lower, the labor supply is more elastic, the environmental efficiency of clean goods is lower, and the technology level in the clean-good production is higher. We also show that a pollution rebound can result in a social welfare improvement, implying that the rebound effect somewhat improves economic efficiency, and so policies aimed at mitigating the rebound effect may be counterproductive from a welfare perspective.


ABSTRACT: This paper conducts an in-depth model diagnostic exercise for two parameters, 1) the elasticity of substitution between the capital/labour aggregate and the energy aggregate in the Integrated Assessment Model (IAM) MERGE's production function and 2) the rate at which new technologies can be deployed within the energy system. We show that in a more complementary world the model's ability to adjust the carbon intensity of its energy sector is more important whereas in a more substitutable world the ability to expand carbon free technologies is of lesser relative importance. The uncertainty in the literature surrounding the elasticity of substitution parameter, its interaction with the mechanisms of technical change, and the associated danger of grounding forward-looking analyses in historically based parameters lend support to the importance of such a diagnostic exercise. Building on work from model intercomparison studies, we investigate whether a given model's choice of strategy is primarily a function of the choice of its parameter values or its structure. A deeper understanding of what drives model behaviour is beneficial to both modellers and the policymakers who utilise their insights and output.


ABSTRACT: Protected areas are crucial for biodiversity conservation and the provision of ecosystem services (ES), but management efforts seem not to be sufficient. To increase management effectiveness, the ES framework offers new promising environmental governance instruments, however, the operational use is still poorly integrated in the management of protected areas. This study used a framework designed for Natura 2000 sites for effective management of protected areas by valorising ES. This framework was applied to 21 study sites in Italy, and 55 ES were quantified in biophysical and monetary terms. Forty-one payments for ecosystem services (PES) were implemented in a participatory process involving local communities and stakeholders. Assessment of the management effectiveness before and after the implementation of PES demonstrated that integrating ES into the management of protected areas can improve their management effectiveness and contribute to regional development through PES. Based on the authors’ experiences, the study highlights various difficulties and opportunities related to ES assessment, implementation of PES, stakeholder engagement, and monitoring of management effectiveness. It also discusses general challenges related to the operationalisation of ES in protected areas, providing recommendations for science and practice.

Bibliography on “cybersecurity”

ABSTRACT: Privacy is a major concern when new technologies are introduced between public authorities and private citizens. What is meant by privacy, however, is often unclear and contested. Accordingly, this article utilises grounded theory to study privacy empirically in the research and design project Teledialogue aimed at introducing new ways for public case managers and placed children to communicate through IT. The resulting argument is that privacy can be understood as an encounter, that is, as something that arises between implicated actors and entails some degree of friction and negotiation. An argument which is further qualified through the philosophy of Gilles Deleuze. The article opens with a review of privacy literature before continuing to present privacy as an encounter with five different foci: what technologies bring into the encounter; who is related to privacy by implication; what is entailed by the spaces of Teledialogue; how privacy relates to projected futures; and how privacy is also an encounter between authority and care. In the end, it is discussed how privacy conceptualised as an encounter is not already there surrounding people or places but rather has to be traced in the specific and situated relations between implicated actors, giving rise to different normative concerns in each case.


ABSTRACT: Benefits of Internet of Things and cloud-fog-edge computing are associated with the risks of confidentiality, integrity, and availability related with the loss of information, denial of access for a long time, information leakage, conspiracy and technical failures. In this article, we propose a configurable, reliable, and confidential distributed data storage scheme with the ability to process encrypted data and control results of computations. Our system utilizes Redundant Residue Number System (RRNS) with new method of error correction codes and secret sharing schemes. We introduce the concept of an approximate value of a rank of a number (AR), which allows us to reduce the computational complexity of the decoding from RNS to binary representation, and size of the coefficients. Based on the properties of the approximate value and arithmetic properties of RNS, we introduce AR-RRNS method for error detection, correction, and controlling computational results. We provide a theoretical basis to configure probability of information loss, data redundancy, speed of encoding and decoding to cope with different objective preferences, workloads, and storage properties. Theoretical analysis shows that by appropriate selection of RRNS parameters, the proposed scheme allows not only increasing safety, reliability, and reducing an overhead of data storage, but also processing of encrypted data. ".


ABSTRACT: Increased intelligence and automation in smart grid results in many heterogeneous applications benefiting from the Internet of Things, such as demand response, energy delivery efficiency/reliability, and fault recovery. However, vulnerabilities in smart grid arise due to public communication infrastructure and Internet-based protocols. To deal with security threats, energy big data should be thoughtfully stored and processed to extract critical information, and security and blackout warnings should be given in an early stage. This work gives a comprehensive tutorial and survey to highlight research challenges on the aforementioned issues in the Internet-of-Things-based smart grid. We demonstrate that a stealthy and blind energy big data attack can be launched using a replay scheme. Also, we elucidate an intuitive geometric viewpoint for this type of attack. The proposed attack can bypass bad data detection successfully using either DC or AC state estimation.
ABSTRACT: As a new term in the financial industry, FinTech has become a popular term that describes novel technologies adopted by the financial service institutions. This term covers a large scope of techniques, from data security to financial service deliveries. An accurate and up-to-date awareness of FinTech has an urgent demand for both academics and professionals. This work aims to produce a survey of FinTech by collecting and reviewing contemporary achievements, by which a theoretical data-driven FinTech framework is proposed. Five technical aspects are summarized and involved, which include security and privacy, data techniques, hardware and infrastructure, applications and management, and service models. The main findings of this work are fundamentals of forming active FinTech solutions.

ABSTRACT: Disk encryption software is frequently used to secure confidential data on mobile devices. However, it is notoriously challenging for disk encryption software to ensure its security in cryptography without involving significant energy overhead. To address the challenge, we design a both cryptographically secure and energy-efficient disk encryption software for mobile devices, Populus. On the one hand, Populus uses modular linear algebra and one-time pad technique to encrypt/decrypt sensitive data on mobile devices, thus ensuring its security in cryptography. To illustrate, we prove Populus’s semantic security. On the other hand, Populus is based on client–server pattern. Its client side works on the kernel layer of mobile devices powered by batteries, while its server side works on the application layer of computing devices powered by fixed electric power source. The server side helps the client side do the computation tasks unrelated to plaintext/ciphertext in the encryption/decryption process, therefore, the energy cost on mobile devices significantly declines. To demonstrate, we conduct energy consumption experiments on Populus and dm-crypt, a famous disk encryption software for Android and Linux mobile devices. The experimental results show that Populus consumes 50%–70% less energy than dm-crypt.

Li, Zhen and Qi Liao. "Economic Solutions to Improve Cybersecurity of Governments and Smart Cities Via Vulnerability Markets." Government Information Quarterly
ABSTRACT: Cities are becoming smarter and smarter. While the rapid progress in smart city technologies is changing cities and the lifestyle of the people, it creates also huge attack surfaces for potential cyber attacks. The potential vulnerabilities of smart city products and imminent attacks on smart city infrastructure and services will have significant consequences that can cause substantial economic and noneconomic losses, even chaos, to the cities and the people. In this paper we study alternative economic solutions ranging from incentive mechanisms to market-based solutions to motivate governments, smart product vendors, and vulnerability researchers and finders to improve the cybersecurity of smart cities and e-government. These solutions can be integrated into policy instruments in defending smart cities and e-governments against cyber attacks.

ABSTRACT: In the past decade, technologies in vehicles have been rapidly advancing creating both a new type of “on the road” entertainment and safer environment while driving. Technologies such as anti-lock brake systems, steering assist, and in some cases autonomous
driving, manufactures nearly eliminated the dangers of driving. To maintain the advances in safe technologies, it is vital to establish a strong security system for automotive networks and is crucial to advance the state of the art in automobile security. Motivated by this, one of the main goals of this research paper is to define a threat environment for CAR networks by discussing the existing security vulnerabilities and threats/attacks that an automobile network is currently facing. To address these security challenges, we also present a distributed firewall system to protect a CAR network from both internal and external networks.

http://doi.acm.org/10.1145/3139293.

ABSTRACT: In many Internet of Thing (IoT) application domains security is a critical requirement, because malicious parties can undermine the effectiveness of IoT-based systems by compromising single components and/or communication channels. Thus, a security infrastructure is needed to ensure the proper functioning of such systems even under attack. However, it is also critical that security be at a reasonable resource and energy cost. In this article, we focus on the problem of efficiently and effectively securing IoT networks by carefully allocating security resources in the network area. In particular, given a set of security resources R and a set of attacks to be faced A, our method chooses the subset of R that best addresses the attacks in A, and the set of locations where to place them, that ensure the security coverage of all IoT devices at minimum cost and energy consumption. We model our problem according to game theory and provide a Pareto-optimal solution in which the cost of the security infrastructure, its energy consumption, and the probability of a successful attack are minimized. Our experimental evaluation shows that our technique improves the system robustness in terms of packet delivery rate for different network topologies. Furthermore, we also provide a method for handling the computation of the resource allocation plan for large-scale networks scenarios, where the optimization problem may require an unreasonable amount of time to be solved. We show how our proposed method drastically reduces the computing time, while providing a reasonable approximation of the optimal solution.

http://dx.doi.org/10.1109/MITP.2017.3680952.

ABSTRACT: In the 21st century, the Internet of Things (IoT) will control critical infrastructure such as smart cities and the smart power grid. The author proposes a new approach to achieve exceptional performance, cybersecurity, and privacy in a green Industrial and Tactile IoT, in datacenters, and in big data green cloud computing systems. The combination of a software-defined networking (SDN) control plane, deterministic communications, and lightweight layer-2 encryption offers several benefits. For example, an SDN control plane can embed millions of deterministic virtual networks (DVNs) into layer 2. All congestion, interference, denial-of-service attacks, and cyberattacks targeting a DVN can be removed in layer 2. Unauthorized packets from a cyberattacker can be detected in layer 2 in microseconds. IoT delays can be reduced to the speed-of-light. Finally, exceptional privacy can be achieved using lightweight encryption with long keys. A green Industrial and Tactile IoT can embed millions of DVNs to enable smart cities, and can also pay for itself quickly through reduced capital and energy costs. A field-programmable gate array hardware testbed illustrates the concepts.

https://doi.org/10.1016/j.chb.2017.10.007.

ABSTRACT: A quantitative behavioural online study examined a set of hazards that correspond with security- and privacy settings of the major global online social network (Facebook). These
settings concern access to a user's account and access to the user's shared information (both security) as well as regulation of the user's information-sharing and user's regulation of others' information-sharing in relation to the user (both privacy). We measured 201 non-student UK users' perceptions of risk and other risk dimensions, and precautionary behaviour. First, perceptions of risk and dread were highest and precautionary behaviour was most common for hazards related to users' regulation of information-sharing. Other hazards were perceived as less risky and less precaution was taken against these, even though they can lead to breaches of users' security or privacy. Second, consistent with existing theory, significant predictors of perceived risk were attitude towards sharing information on Facebook, dread, voluntariness, catastrophic potential and Internet experience; and significant predictors of precautionary behaviour were perceived risk, control, voluntariness and Internet experience. Methodological implications emphasise the need for non-aggregated analysis and practical implications emphasise interventions to promote safe online social-network use.


ABSTRACT: Online social media has become a vital platform to discuss common topics which are being categorised under a single name: Hashtag where people put their views, opinions and data. Thus hashtags have become a victim for spam, fake and un-related advertising content dissemination. In this paper we propose a novel approach designed on 9 distinctive parameters which extends to 4 other derived statistic from Twitter Streaming API, to detect Hashtag hijacking using Neural network analysis which shows a mean hijacking percentage of 28.5 over 10,240 test tweets collected whereas, manual based annotation performed results in 17.14% hijacking. Our method over collected dataset results in 94.025% accuracy.

Bibliography on “digital divide”


ABSTRACT: In February 2010, Google challenged US cities to compete for being the site of its first attempt at building ultra-high-speed fiber-to-the-premises (FTTP) network, promising speeds up to one hundred times faster than pre-existing broadband services. More than 1100 cities applied. Kansas City, however, was announced as the winner of the competition. This paper explores the rollout of Google Fiber in Kansas City from three different perspectives. First, we provide a close examination of urban governance and the Fiber project – highlighting numerous regulatory concessions and incentives provided to Fiber during the construction phase. Second, we explore the ways in which pre-existing digital divides and socio-economic inequalities impacted the Fiber plan for Kansas City. Finally, in an effort to better understand the geographic intricacies of Fiber service, this paper uses a novel data mining technique and exploratory spatial data analysis to highlight the provision footprints for two counties in the Kansas City metropolitan area. We conclude with a discussion of the salient policy implications of projects like Fiber for urban governance, highlighting both the promises and stark realities of such ventures.

ABSTRACT: This study aims at exploring how information and communications technology (ICT) is accessed and used by women and men in Rwanda. Specifically, we analyze the factors that contribute to the gender digital divide in Rwanda. In addition, we assess the importance of equal access to ICTs between genders. Rwanda is a particularly interesting case study, since previous studies on gender differences in the usage and accessibility of ICTs have focused on Western countries, while Africa, and Rwanda in particular, have been less covered. The qualitative method of in-depth interviews was used to collect the data. Interviews were analyzed using a thematic analysis technique. The findings of this study reveal that a gender digital divide still exists in Rwanda, even though the government puts forth much effort to eradicate this phenomenon. Reasons for barriers for women’s access to ICTs were found in social, economic and cultural factors, such as feelings of lack of self-worth, self-confidence, and proper educations; heavy domestic responsibilities; and computer anxiety. The findings also indicated that equal access to ICTs would be a shortcut to economic growth in Rwanda. This study concludes that Rwandan women need to be better educated in the use of computer technologies. Certain gender-sensitive strategies that guide the use of ICTs in this way also need to be established. 

doi: 10.1371/journal.pone.0184545.

ABSTRACT: The changing demographic structure of the population, resulting in unparalleled growth of the elderly population, means that e-inclusion of this population group is considered to be a social and political priority in the context of the Information Society. Most research studies have only considered individual variables -such as age, gender, education, income and health- in the explanatory models of e-inclusion of senior citizens, while ignoring macro variables, such as the welfare systems and public policies in each country. Simultaneously, most studies focus on small-scale samples, lack international comparisons and do not consider the combined effect of several variables that influence Internet use. This study aims to analyse possible differences between two countries that have different welfare systems and public policies, after controlling for the effects of the individual variables that have been identified in the literature as relevant for Internet use. The study focuses on a sample of 8639 individuals, aged 50 years and over, residing in Portugal and Estonia, who participated in the SHARE project (Survey of Health, Ageing and Retirement in Europe). The results of the logistic regression analysis demonstrate that welfare systems and public policies have an impact on the likelihood of Internet use, thus reinforcing the importance of developing public policies to foster e-inclusion of senior citizens.

doi: 10.1109/CeDEM.2017.30
http://dx.doi.org/10.1109/CeDEM.2017.30

ABSTRACT: Strategies and policies to bridge identified and potential digital divides is a core challenge when forming an inclusive and participatory digital democracy and society. In line with the progress and development of digital technologies and applications governments have to address digital divides. This project discusses how social and digital divides have been addressed in a project called "The Digital media bus in Östergötland". This project builds on the library buses that have been running in the region for long a long time. The libraries in Sweden also have to address digital inclusion and implement strategies towards increased use of and knowledge about information technologies. This analysis builds on an action research approach. The analyse here are focusing on the implementation, project management and how the project has addressed digital inclusion. Finally, we end up discussing the diversity of digital inclusion, elaborating on the meanings of digital divides and digital diversity.
Bibliography on “digital economy”


ABSTRACT: In February 2010, Google challenged US cities to compete for being the site of its first attempt at building ultra-high-speed fiber-to-the-premises (FTTP) network, promising speeds up to one hundred times faster than pre-existing broadband services. More than 1100 cities applied. Kansas City, however, was announced as the winner of the competition. This paper explores the rollout of Google Fiber in Kansas City from three different perspectives. First, we provide a close examination of urban governance and the Fiber project – highlighting numerous regulatory concessions and incentives provided to Fiber during the construction phase. Second, we explore the ways in which pre-existing digital divides and socio-economic inequalities impacted the Fiber plan for Kansas City. Finally, in an effort to better understand the geographic intricacies of Fiber service, this paper uses a novel data mining technique and exploratory spatial data analysis to highlight the provision footprints for two counties in the Kansas City metropolitan area. We conclude with a discussion of the salient policy implications of projects like Fiber for urban governance, highlighting both the promises and stark realities of such ventures.


ABSTRACT: This study examines the direct empirical relationship between independent variables (technology, perceived usefulness, and perceived ease of use) and intention to use internet banking (IB) among 200 SMEs owners in Yemen. Moreover, the research identifies the significance of intention to use IB as a plausible mediator in the relationship between independent variable (technology, perceived usefulness, and perceived ease of use) and intention to use IB - intention to use internet-banking rates. The analyses of the gathered data employed the Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that technology and perceived ease of use and perceived usefulness positively influences intention to use, Moreover, awareness was found to be significant mediating factors in the relationship among technology and perceived ease of use, and intention to use IB among SMEs' owners. Awareness was a negative mediating factor in the relationship between technology and perceived ease of use among SMEs' owners. The relationship between awareness, (technology, perceived usefulness, perceived ease of use), and intention to use IB play a particularly important role in developing IB among SME in Yemen. Based on research findings, theoretical and practical implications were discussed. Limitations and recommendations for future research were also highlighted.


ABSTRACT: The digital revolution in medicine not only offers exciting new directions for the treatment of mental illness, but also presents challenges to patient privacy and security. Changes in medicine are part of the complex digital economy based on creating value from analysis of behavioral data acquired by the tracking of daily digital activities. Without an understanding of the digital economy, recommending the use of technology to patients with mental illness can inadvertently lead to harm. Behavioral data are sold in the secondary data market, combined with other data from many sources, and used in algorithms that automatically classify people. These classifications are used in commerce and government, may be discriminatory, and result in non-medical harm to patients with mental illness. There is also potential for medical harm related to poor quality online information, self-diagnosis and self-treatment, passive monitoring, and the
use of unvalidated smartphone apps. The goal of this paper is to increase awareness and foster discussion of the new ethical issues. To maximize the potential of technology to help patients with mental illness, physicians need education about the digital economy, and patients need help understanding the appropriate use and limitations of online websites and smartphone apps.

ABSTRACT: Drivers of social commerce usage has been the focus of scholars in recent years, but mobile social media users' resistance behavior towards mobile social commerce has been in the darkness and therefore worth torched lights on. With the data collected from mobile social media users who have no experience in mobile social commerce, Artificial Neural Network analysis was engaged to capture both linear and nonlinear relationships in a research model that consists of innovation barriers and privacy concern. Surprisingly, all resistances positively correlated with usage intention, except for image barrier, which appeared to be the most influencing resistance. Several explanations were offered for such outcomes. The possible coexistence of resistance behavior and usage intention resembles the fitting justification. Mobile social media users intend to embrace mobile social commerce; however, their intentions have been held up by their perceptions on innovation barriers and privacy concern. Based upon these outcomes, this study has reaffirmed the coexistence of resistances and usage intention, as well as the "privacy paradox" phenomenon. These discoveries are believed to have contributed to the existing literature. Practitioners are then advised to act accordingly to these findings, and several methods on catalyzing mobile social media users' adoption decision were suggested.

ABSTRACT: Digital technology has dramatically changed the structure of many industrial sectors. The rise of the Internet and increased broadband access have given rise to new business models and strategies for firms dealing with both electronic and physical goods. Industrial Organization and the Digital Economy focuses on changes in the two industries most affected by the new technology: software and music. The book offers the theoretical and factual grounding necessary for understanding the changes in industrial organization brought about by the digital economy, with the chapters together providing an accessible and interesting cross-fertilization of fact and theory. Moreover, two chapters demonstrate the relevance of the emerging literature on two-sided markets for the digital economy. The contributors consider such topics as the innovation value of software; empirical evidence and theoretical analysis regarding the impact of file sharing on music sales; the ability of firms to modify their products and offer them in different versions; the practice of preannouncing information goods; the effects of electronic commerce on both consumers and retailers; and price-setting by electronic mediators. The studies in Industrial Organization and the Digital Economy provide a valuable starting point for future research on other aspects of the subject, including the open-source movement and trust and reputation. Contributors: Paul Belleflamme, Jay Pil Choi, Emin M. Dinlersoz, David S. Evans, Chaim Fershtman, Neil Gandal, Amit Gayer, Andrei Hagiu, Gerhard Illing, Bruno Jullien, Eirik Gaard Kristiansen, Stan J. Liebowitz, Jae Nahm, Martin Peitz, Pedro Pereira, Richard Schmalensee, Oz Shy, Patrick Waelbroeck.

Maduku, Daniel K. "Customer Acceptance of Mobile Banking Services: Use Experience as Moderator." Social Behavior and Personality, 45, no. 6 (2017): 893-900
ABSTRACT: Using an integrated conceptual model that incorporated the theories of unified theory acceptance and use of technology, social cognition, and institution-based trust, in the context of mobile banking (m-banking) use, I investigated the moderating effect of use experience on the
relationships among the factors of acceptance (performance expectancy, effort expectancy, self-efficacy, and structural assurance) and behavioral intention to use m-banking. Data for empirical testing of the model were obtained through a survey of 401 retail-banking customers in South Africa. Although the proposed model was supported by the data, the moderating effects of use experience on the factors of behavioral intention were nonsignificant, except in the relationship between structural assurance and behavioral intention. The implications of these findings for efforts aimed at accelerating the acceptance of m-banking services are discussed.

https://doi.org/10.1016/j.tele.2016.08.009.
ABSTRACT: The purpose of this paper is to explore word of mouth impact on the adoption of mobile banking in Iran. This study provides insights into factors affecting the adoption of mobile banking in Iran. Based on the consumer data collected through a survey, structural equations modeling and path analysis were employed to test the research model. The results revealed that "Word of Mouth" was found to be the main factor affecting users attitudes toward the use of mobile banking. "Word of Mouth" positive impact on other factors affecting the adoption of mobile banking was also approved. The major limitations of the paper is that it studies only the Internet users and non-users are not considered. There are a number of factors efficiently on the adoption of mobile banking. Many researchers worked on the relationship between these parameters and their effect on each them. However, none have paid attention to the word of mouth impact of the adoption of mobile banking. In this study, for the first time, the word of mouth factor impact on the adoption of mobile banking in Iran is considered as the main contribution of the paper. ".

ABSTRACT: The biennial OECD Digital Economy Outlook examines and documents evolutions and emerging opportunities and challenges in the digital economy. It highlights how OECD countries and partner economies are taking advantage of information and communication technologies (ICTs) and the Internet to meet their public policy objectives. Through comparative evidence, it informs policy makers of regulatory practices and policy options to help maximise the potential of the digital economy as a driver for innovation and inclusive growth.

ABSTRACT: [...]any customer service strategy that may have included social media as part of its long-term business plan has a higher chance to maintain corporate competitive advantages (Lee, 2013; Rezaei and Ismail, 2014). [...]it may then allow customers to get influenced by social media in, for example, seeking for information on products or services through ecommerce, making them to establish a stronger purchase intention (Singh and Cullinane, 2010; Kshetri and Jha, 2016). [...]some factors originated from social media may have triggered consumers' purchasing motivation and developed a new consumption pattern online, i.e. the social media purchasing (Atchariyachanvanich and Hitoshi, 2007; Chen, 2014; CNNIC Online Shopping Report, 2014; Hoa, 2014). In previous studies, "most consumers felt unsafe due to the perceived risks of conducting online payment. [...]they prefer to place the order via the traditional channels where they can chat the salesperson" (Jang Chan and Chen, 2013). Consumers in Indonesia have had a high social media usage during their daily routines. [...]creating groups and communities at social media may help companies to attract loyal consumers through discussions, in which they may raise the likelihood of customers to conduct purchasing activities at their ecommerce sites (Chen, 2014).
http://doi.acm.org/10.1145/3143424.

**ABSTRACT:** Innovations in computing and ubiquitous network infrastructures have driven the growing interest in digital currencies and payment technologies. Prominent examples include BitCoin, MPesa, ApplePay, and Venmo; in some cases, they have radically changed the ways in which we are able to transact with others. These technologies not only offer new ways of interacting with money but also can transform our understanding of how financial operations occur, how to make sense of financial information, and how these new forms of money or payment methods change our social interactions. Such developments present critical questions for HCI and IxD, including how we can support the design of new forms of technology that give value to money so that it is interactionally usable but also useful: credible as a form of financial exchange and understandable as a mechanism for economic transaction.

doi: 10.1109/COMTECH.2017.8065756
http://dx.doi.org/10.1109/COMTECH.2017.8065756

**ABSTRACT:** In today's growing technological world, Information Communication Technology (ICT) plays an important role in the efficient functioning of an enterprise. The data and information are the most important resources of the organization. The security of organization resources is a major problem. In this paper, our contribution is twofold, firstly we investigate and analyze the different security architectures of important organization such as online banking, E-government, higher education sector, E-health, Internet of Things (IoT) and cloud computing etc. Secondly, we propose a universal security framework for an enterprise for the protection of its resources. We divide the security framework into three layers, perimeter security layer, network security layer and internal security layer. With this categorization, we aim to provide an easy and concise view of the design details of an enterprise security architecture.


**ABSTRACT:** The current study aims to identify the recent research trend of electronic commerce research and report theoretical background used in the electronic commerce research articles. By searching the five electronic commerce research journals, including Electronic Commerce Research, Electronic Commerce Research and Applications, International Journal of Electronic Commerce, Journal of Electronic Commerce Research, and Journal of Theoretical and Applied Electronic Commerce Research listed in the Social Sciences Citation Index (SSCI) database in a seventeen years period between January 2000 and December 2016, we found 1,205 electronic commerce research articles. By analyzing these articles, the current study maps the trend and reveals the highly influence research article. The current study also reveals theories that used in the electronic commerce research articles. The results provide fundamental insights on the recent research of electronic commerce.

**“Bibliography on “e-Government”**

doi: 10.1109/ICITECH.2017.8080062
http://dx.doi.org/10.1109/ICITECH.2017.8080062
ABSTRACT: Rapid moving in the technology and the need to respond to the massive changes in the big data create another challenge for the government to make the deal with a huge amount of data easier and to implement effectively multi-channel platforms for digital transformation. The need for technology such as social media, e-participation tools and new models of open data to generate big data also have added to these challenges, in addition to the slow adoption of the public sector and citizens for these new concepts of openness and effective interaction through electronic technology. For citizen's improvements the e-participation processes, government innovations, and citizen satisfaction governments need to enhance the collaboration and engagement. As well, it needs to improve the value that delivers inside and outside of government sectors also satisfies the citizens' demands for better services by collecting data from citizens' activities. When e-government utilizing the big data technologies, which offers a new effective technology to provide interactive services, the e-government will be more than just a big and more than just a data. The term of "Big data" must be used in e-government. In this paper, the authors explore a review in big data issues that applied to e-government as well as challenges and issues facing these agencies and proposed a possible solution for the challenges of implementing big data in e-government. Most of the recently published papers clearly show that the challenges are difficult and the growing in terms of big data is increasing exponentially.


ABSTRACT: Open government data (OGD) policy differs substantially from the existing Freedom of Information policies. Consequently OGD can be viewed as a policy innovation. Drawing on both innovation diffusion theory and its application to public policy innovation research, we examine Australia's OGD policy diffusion patterns at both the federal and state government levels based on the policy adoption timing and CKAN portal “Organization” and “Category” statistics. We found that state governments that had adopted OGD policies earlier had active policy entrepreneurs (or lead departments/agencies) responsible for the policy innovation diffusion across the different government departments. We also found that their efficacy ranking was relatively high in terms of OGD portal openness when openness is measured by the greater number of datasets proactively and systematically published through their OGD portals. These findings have important implications for the role played by OGD policy entrepreneurs in openly sharing the government-owned datasets with the public.

El-Omari, N. K. T. and Alzaghal M.H. "The Role of Open Big Data within the Public Sector, Case Study: Jordan.". 2017 8th International Conference on Information Technology (ICIT): 182-186, 2017 doi: 10.1109/ICITECH.2017.8079997 http://dx.doi.org/10.1109/ICITECH.2017.8079997

ABSTRACT: In the digital era, the Big Data concept started to play a tremendous role in the public sector. Jordan started an E-Government program to provide citizens with electronic services. In this paper: the role of Open Big Data in the Jordanian public sector is discussed. We will evaluate the E-Government program in Jordan which is the driver behind collecting Big Data and making it available for its citizens. A model is introduced to enhance the usage of Big Data with the National Center for Security and Crises Management (NCSCM) playing a leading role.


ABSTRACT: Information Technology Utilization (ITU) considered as one of success factor for public sector services in the government organization. As one of the countries that conduct bureaucratic reforms, Indonesia has sought to implement IT as an embodiment of Presidential
Instruction (Inpres) in 2013, which contains the implementation of e-Government services. Through e-Government services, public service processes in Indonesia targeted to be more effective, efficient, accountable and transparent. In order to reduce the failure of e-Government implementation process, determining success factors would be an adding value thus also leads to the successful of service implementation. Several type of research have been conducted in regards to successful of e-Government implementation, especially on Critical Success Factor (CSF). Through Meta-Ethnography approach, this study revealed four critical success factors of e-Government Implementation in Indonesia, namely: organization, processes, people and technology. Further, the proposed model of this CSF will be tested in government organization across Indonesia.

https://doi.org/10.1007/s10209-016-0490-z.

**ABSTRACT:** Government Web sites aim to provide information to the citizens of the country; therefore, they should be accessible, easy to use and visible via search engines. Based on this assumption, in this paper, the ministry Web sites of four countries namely the Kyrgyz Republic, the Republic of Azerbaijan, the Republic of Kazakhstan and the Republic of Turkey were analyzed in terms of accessibility and quality in use. Tests were carried out utilizing online automated tools. Results indicate that the usage rate of Information and Communication Technologies by the government is higher in Turkey, which affects the visibility of government Web sites but not their quality in use. Very few ministry Web sites of the four countries achieved AA conformance level on accessibility, many failed to pass conformance level A and AA checkpoints for accessibility errors. In order to ensure equal access to all their citizens, the countries in this study need to put more emphasis on designing government Web sites to be more accessible.

*Government Information Quarterly*, In Press

**ABSTRACT:** Collaboration among governmental organizations has been regarded as essential for realizing benefits of e-government investments. Inter-organizational collaboration on e-government can appear in several forms and can aim at varying types of benefits. However, few if any studies have delved deeper into analysis of how chosen forms of collaboration might relate to targeted e-government benefits. This article studies five cases of how contemporary acquisitions and implementations of digital archiving systems have been launched through five modes of collaboration (autonomous, standardization, framework agreement, consortium, and central service organization) among organizations in the Swedish public sector. Our analysis reveals that whereas the target system, digital archive in our case, stays similar, expected benefits vary. The article contributes by elaborating the concept of mode of collaboration that identifies typical benefits justifying a choice of a particular collaboration form on e-government development and describing the five modes in more detail based on a multi-case study. The article also outlines fourteen related propositions of the correlation between the collaboration modes and expected benefits to be verified by further research.

doi: 10.1109/ITHET.2017.8067812

**ABSTRACT:** Electronic assessments are gaining more and more relevance at many universities and other educational institutions. At Johannes Kepler University in Linz, Austria, an electronic examination room was established in 2011 and is being continuously developed since then. It has
emerged as a user-friendly and highly automated means of administering assessments in multiple faculties. Digital signatures involving the students’ identity cards are utilized to ensure legally binding and highly secure submissions. This research discusses preliminary findings and presents the outcome of a current evaluation.

ABSTRACT: Cities are becoming smarter and smarter. While the rapid progress in smart city technologies is changing cities and the lifestyle of the people, it creates also huge attack surfaces for potential cyber attacks. The potential vulnerabilities of smart city products and imminent attacks on smart city infrastructure and services will have significant consequences that can cause substantial economic and noneconomic losses, even chaos, to the cities and the people. In this paper we study alternative economic solutions ranging from incentive mechanisms to market-based solutions to motivate governments, smart product vendors, and vulnerability researchers and finders to improve the cybersecurity of smart cities and e-government. These solutions can be integrated into policy instruments in defending smart cities and e-governments against cyber attacks.

ABSTRACT: We analyze some foreign and Russian e-government development practices and propose the creation of the structured policy based on the PMI project management standards. We offer the IDEF0 standard as a methodology for public authority project management. Also, we suggest the workflow class notation for the lower levels. However, the current notation tools are not enough to reflect all the business processes of the e-services for public authorities. We propose a methodology for the project management development with some extra elements (objects and subjects) designed to describe the process types and the corresponding e-services more precisely. The additional task which was successfully solved thanks to the proposed e-services design technology is that the data security requirements were accomplished. We also describe how to use the offered approach to design the information systems and secure e-services for providing the citizens and the legal entities the land which is in the state possession.

ABSTRACT: The Iraq health sector has witnessed significant progress in recent years with some local hospitals receiving international recognition. However, this has not been accompanied by advancement of the electronic-health (e-health) field, whose applications have become a necessity for hospitals to achieve certain objectives such as enhancing the quality of healthcare, and reducing the time and cost for healthcare delivery. In this paper, we will define the current state of healthcare sector in Iraq and Barriers to develop this sector in Iraq comparing with developed countries and Middle East countries by proposed new system for Iraq health care system depending on term of e-health.

ABSTRACT: In today's growing technological world, Information Communication Technology (ICT)
plays an important role in the efficient functioning of an enterprise. The data and information are the most important resources of the organization. The security of organization resources is a major problem. In this paper, our contribution is twofold, firstly we investigate and analyze the different security architectures of important organization such as online banking, E-government, higher education sector, E-health, Internet of Things (IoT) and cloud computing etc. Secondly, we propose a universal security framework for an enterprise for the protection of its resources. We divide the security framework into three layers, perimeter security layer, network security layer and internal security layer. With this categorization, we aim to provide an easy and concise view of the design details of an enterprise security architecture.

doi: 10.1109/CeDEM.2017.30
http://dx.doi.org/10.1109/CeDEM.2017.30

ABSTRACT: Strategies and policies to bridge identified and potential digital divides is a core challenge when forming an inclusive and participatory digital democracy and society. In line with the progress and development of digital technologies and applications governments have to address digital divides. This project discusses how social and digital divides have been addressed in a project called "The Digital media bus in Östergötland". This project builds on the library buses that have been running in the region for long a long time. The libraries in Sweden also have to address digital inclusion and implement strategies towards increased use of and knowledge about information technologies. This analysis builds on an action research approach. The analyse here are focusing on the implementation, project management and how the project has addressed digital inclusion. Finally, we end up discussing the diversity of digital inclusion, elaborating on the meanings of digital divides and digital diversity.

**Bibliography on “e-Health”**

doi: https://doi.org/10.1016/j.comcom.2017.10.005.
10.1016/j.comcom.2017.10.005.

ABSTRACT: The number of people with a chronic disease is rapidly increasing, giving the healthcare industry more challenging problems. To date, there exist several ontology and IoT-based healthcare systems to intelligently supervise the chronic patients for long-term care. The central purposes of these systems are to reduce the volume of manual work in recommendation systems. However, due to the increase of risk and uncertain factors of the diabetes patients, these healthcare systems cannot be utilized to extract precise physiological information about patient. Further, the existing ontology-based approaches cannot extract optimal membership value of risk factors; thus, it provides poor results. In this regards, this paper presents a type-2 fuzzy ontology–aided recommendation systems for IoT-based healthcare to efficiently monitor the patient's body while recommending diets with specific foods and drugs. The proposed system extracts the values of patient risk factors, determines the patient’s health condition via wearable sensors, and then recommends diabetes-specific prescriptions for a smart medicine box and food for a smart refrigerator. The combination of type-2 Fuzzy Logic (T2FL) and the fuzzy ontology significantly increases the prediction accuracy of a patient’s condition and the precision rate for drug and food recommendations. Information about the patient's disease history, foods consumed, and drugs prescribed is designed in the ontology to deliver decision-making knowledge using Protégé Web Ontology Language (OWL)-2 tools. Semantic Web Rule Language (SWRL) rules and fuzzy logic are employed to automate the recommendation process. Moreover, Description Logic (DL) and Simple Protocol and RDF Query Language (SPARQL) queries are used
to evaluate the ontology. The experimental results show that the proposed system is efficient for patient risk factors extraction and diabetes prescriptions.


ABSTRACT: The digital revolution in medicine not only offers exciting new directions for the treatment of mental illness, but also presents challenges to patient privacy and security. Changes in medicine are part of the complex digital economy based on creating value from analysis of behavioral data acquired by the tracking of daily digital activities. Without an understanding of the digital economy, recommending the use of technology to patients with mental illness can inadvertently lead to harm. Behavioral data are sold in the secondary data market, combined with other data from many sources, and used in algorithms that automatically classify people. These classifications are used in commerce and government, may be discriminatory, and result in non-medical harm to patients with mental illness. There is also potential for medical harm related to poor quality online information, self-diagnosis and self-treatment, passive monitoring, and the use of unvalidated smartphone apps. The goal of this paper is to increase awareness and foster discussion of the new ethical issues. To maximize the potential of technology to help patients with mental illness, physicians need education about the digital economy, and patients need help understanding the appropriate use and limitations of online websites and smartphone apps.

https://doi.org/10.1016/j.tele.2017.05.006.

ABSTRACT: In this study, we explore the role of telemedicine in reducing gender-based barriers women and girls in rural areas of Nepal are facing to access healthcare services. Data were collected through a mixed method consisting of questionnaires survey, in-depth interviews, and focus group discussions with mobile phone and video conference-based telemedicine users. Data were analysed through descriptive and thematic analysis. Results revealed that telemedicine reduced travel restrictions, treatment expenses, and apprehension regarding sexual and reproductive health consultation. Moreover, telemedicine decreased travel time, which helps women and girls access timely healthcare services and improve time management for household chores and other activities. The conclusion is that rural telemedicine tends to reduce gender-based barriers for women and girls in accessing healthcare services. Finally, policy recommendations are provided for expanding these initiatives in rural areas.

doi: 10.1016/j.pmcj.2017.06.018.
https://doi.org/10.1016/j.pmcj.2017.06.018.

ABSTRACT: As a new revolution of the Internet, Internet of Things (IoT) is rapidly gaining ground as a new research topic in many academic and industrial disciplines, especially in healthcare. Remarkably, due to the rapid proliferation of wearable devices and smartphone, the Internet of Things enabled technology is evolving healthcare from conventional hub based system to more personalised healthcare systems (PHS). However, empowering the utility of advanced IoT technology in PHS is still significantly challenging in the area considering many issues, like shortage of cost-effective and accurate smart medical sensors, unstandardised IoT system architectures, heterogeneity of connected wearable devices, multi-dimensionality of data generated and high demand for interoperability. In an effect to understand advance of IoT technologies in PHS, this paper will give a systematic review on advanced IoT enabled PHS. It will review the current research of IoT enabled PHS, and key enabling technologies, major IoT
enabled applications and successful case studies in healthcare, and finally point out future research trends and challenges."

doi: 10.1109/COMAPP.2017.8079731
http://dx.doi.org/10.1109/COMAPP.2017.8079731
ABSTRACT: The Iraq health sector has witnessed significant progress in recent years with some local hospitals receiving international recognition. However, this has not been accompanied by advancement of the electronic-health (e-health) field, whose applications have become a necessity for hospitals to achieve certain objectives such as enhancing the quality of healthcare, and reducing the time and cost for healthcare delivery. In this paper, we will define the current state of healthcare sector in Iraq and Barriers to develop this sector in Iraq comparing with developed countries and Middle East countries by proposed new system for Iraq health care system depending on term of e-health.

Bibliography on “emergency communication”

ABSTRACT: In case of emergency, hearing-impaired people are not always able to access emergency services, and hence, they do not have equal access to social support and infrastructure. In this work, we describe an action research study that undertakes the development and evaluation of a system aiming to meet the communication needs of hearing-impaired citizens in cases of emergency. The system consists of (1) a mobile application that records and sends the details of an emergency event and (2) a central management system that handles these calls from the operation center at the emergency services. The system was completed in four cycles of design, development and evaluation with the involvement of 74 hearing-impaired users and three officers from the Cyprus Police (Emergency Response Unit). Results demonstrated how the system can provide easy and direct access to emergency services, without the need of any intermediate, enabling the inclusion of these citizens in a critical process such as the response to an emergency.

doi: 10.1109/ACCESS.2017.2752174.
http://dx.doi.org/10.1109/ACCESS.2017.2752174.
ABSTRACT: Disastrous events are cordially involved with the momentum of nature. As such mishaps have been showing off own mastery, situations have gone beyond the control of human resistive mechanisms far ago. Fortunately, several technologies are in service to gain affirmative knowledge and analysis of a disaster's occurrence. Recently, Internet of Things (IoT) paradigm has opened a promising door toward catering of multitude problems related to agriculture, industry, security, and medicine due to its attractive features, such as heterogeneity, interoperability, light-weight, and flexibility. This paper surveys existing approaches to encounter the relevant issues with disasters, such as early warning, notification, data analytics, knowledge aggregation, remote monitoring, real-time analytics, and victim localization. Simultaneous interventions with IoT are also given utmost importance while presenting these facts. A comprehensive discussion on the state-of-the-art scenarios to handle disastrous events is presented. Furthermore, IoT-supported protocols and market-ready deployable products are
summarized to address these issues. Finally, this survey highlights open challenges and research trends in IoT-enabled disaster management systems.

Bibliography on “gender”

ABSTRACT: The study examines the effect of female directors on firm performance for Indian firms, where the domination of family firms and a patriarchal society may reduce the importance of female directors. Our empirical results suggest that the gender diversity does not matter for Indian firms. Our further results support this finding by indicating that female directors face more attendance problems compared to male directors, and are less likely to be appointed in monitoring related committees. Overall, our results strengthen the tokenism status theory associated with female directors, especially in family-owned firms and in a patriarchal society.

ABSTRACT: The purpose of this study was to identify pay disparities within gender and race using private and public Association of Research Libraries (ARL) libraries as a lens. In this study, 44 ARL libraries participated, leading to 1099 usable responses to our survey. The findings indicate that race and gender pay disparities are larger at private libraries than at public libraries. However, disparity levels at both public and private ARL libraries are smaller than the national averages for all professions and continue to shrink.

ABSTRACT: The study examines the gendered discourse patterns on a popular online social network, TheMarker Café, using social network analysis. Overall, the findings strengthen previous analyses that report evidence of men's assertive and dominant discourse style and social role versus women's more cooperative and supportive discourse style. Men wrote more posts, while women commented on other people’s posts more often. Women's posts received higher rankings than men's posts, strengthening the notion that women receive more affirmations on online social networks. The study also examined the interplay between the structure of the TheMarker Café network and gendered discourse patterns. Our findings also confirmed a link between activity network structure and women content popularity.

ABSTRACT: Gender inequity in science and academia, especially in senior positions, is a recognised problem. The reasons are poorly understood, but include the persistence of historical gender ratios, discrimination and other factors, including gender-based behavioural differences. We studied participation in a professional context by observing question-asking behaviour at a large international conference with a clear equality code of conduct that prohibited any form of discrimination. Accounting for audience gender ratio, male attendees asked 1.8 questions for
each question asked by a female attendee. Amongst only younger researchers, male attendees also asked 1.8 questions per female question, suggesting the pattern cannot be attributed to the temporary problem of demographic inertia. We link our findings to the ‘chilly’ climate for women in STEM, including wider experiences of discrimination likely encountered by women throughout their education and careers. We call for a broader and coordinated approach to understanding and addressing the barriers to women and other under-represented groups. We encourage the scientific community to recognise the context in which these gender differences occur, and evaluate and develop methods to support full participation from all attendees.


ABSTRACT: Fully automated self-driving cars, with expected benefits including improved road safety, are closer to becoming a reality. Thus, attention has turned to gauging public perceptions of these autonomous vehicles. To date, surveys have focused on the public as potential passengers of autonomous cars, overlooking other road users who would interact with them. Comparisons with perceptions of other existing vehicles are also lacking. This study surveyed almost 1000 participants on their perceptions, particularly with regards to safety and acceptance of autonomous vehicles. Overall, results revealed that autonomous cars were perceived as a “somewhat low risk” form of transport and, while concerns existed, there was little opposition to the prospect of their use on public roads. However, compared to human-operated cars, autonomous cars were perceived differently depending on the road user perspective: more risky when a passenger yet less risky when a pedestrian. Autonomous cars were also perceived as more risky than existing autonomous trains. Gender, age and risk-taking had varied relationships with the perceived risk of different vehicle types and general attitudes towards autonomous cars. For instance, males and younger adults displayed greater acceptance. Whilst their adoption of this autonomous technology would seem societally beneficial – due to these groups’ greater propensity for taking road user risks, behaviours linked with poorer road safety – other results suggested it might be premature to draw conclusions on risk-taking and user acceptance. Future studies should therefore continue to investigate people’s perceptions from multiple perspectives, taking into account various road user viewpoints and individual characteristics.

https://doi.org/10.1016/j.eswa.2017.10.017.

ABSTRACT: Gender classification in smartphones has a lot of potential applications. Specifically, the gender information can be used by expert and intelligent systems that are part of healthcare, smart spaces and biometric-based access control applications. For example, operations of intelligent systems in a smart space can be customized based on gender information to provide an enhanced user experience. Similarly, a biometric system can use gender as a soft biometric trait to improve its user authentication performance. This paper presents an approach for gender classification using users’ gait information captured using the built-in sensors of a smartphone. Histogram of gradient (HG) method is proposed to extract features from the gait data, which includes a set of signals collected from accelerometer and gyroscope sensors of a smartphone. The bootstrap aggregating classifier utilizes the discriminatory information in these features for classification of the gender. The performance of the proposed approach has been evaluated on datasets collected using two different smartphones. These datasets contain a total of 654 gait data from 109 subjects. Our experimental results show that the classification accuracy of the proposed approach is higher than that of the existing methods. Additional experiments performed to examine the effect of variations in walking speed indicate that these variations have a minimal impact on the performance of proposed approach. Furthermore, results from our experiments performed on the gait data collected using two different smartphones suggest that the performance of the proposed algorithm for gender recognition is consistent across the two
datasets, achieving classification accuracies of 91.78%, 94.44% and 88.89% on the first dataset and 90.48%, 91.07% and 88.46% on the second dataset for normal, fast and slow walking speeds, respectively. The results of this study are significant as they indicate that gait information captured by the smartphones’ built-in sensors can be used to derive gender information reliably and unobtrusively. “.


ABSTRACT: Friends tend to be similar in their academic achievement. In this study, we investigate whether this similarity results from students selecting friends with similar achievement or from friends influencing students’ achievement. In particular, we argue that selection and influence effects should be stronger among girls than among boys. Using friendship network data on 1273 German secondary school students and stochastic actor-oriented models for the co-evolution of networks and behavior, we find selection effects only among girls, which is in line with our theoretical arguments. By contrast, influence effects contribute to achievement similarity among both boys and girls.


ABSTRACT: Gender equality on boards is a global and highly politicized issue. To this day, there is considerable cross-country variation in female board representation. We examine institutional supply- and demand-side factors associated with this issue. Our results indicate that a societal climate of gender equality contributes to more women on boards, mainly through fostering the supply of suitable candidates. Therefore, the glass ceiling should be improved through a societal supply-side effort which needs to complement demand-side (quota) regulation.


ABSTRACT: This study aims at exploring how information and communications technology (ICT) is accessed and used by women and men in Rwanda. Specifically, we analyze the factors that contribute to the gender digital divide in Rwanda. In addition, we assess the importance of equal access to ICTs between genders. Rwanda is a particularly interesting case study, since previous studies on gender differences in the usage and accessibility of ICTs have focused on Western countries, while Africa, and Rwanda in particular, have been less covered. The qualitative method of in-depth interviews was used to collect the data. Interviews were analyzed using a thematic analysis technique. The findings of this study reveal that a gender digital divide still exists in Rwanda, even though the government puts forth much effort to eradicate this phenomenon. Reasons for barriers for women’s access to ICTs were found in social, economic and cultural factors, such as feelings of lack of self-worth, self-confidence, and proper educations; heavy domestic responsibilities; and computer anxiety. The findings also indicated that equal access to ICTs would be a shortcut to economic growth in Rwanda. This study concludes that Rwandan women need to be better educated in the use of computer technologies. Certain gender-sensitive strategies that guide the use of ICTs in this way also need to be established. “.


ABSTRACT: There are many factors that shape this gender gap including a lack of financial literacy, informal or irregular sources of income, the high cost of opening or operating a bank
account, inaccessible bank branch locations or lack of government-issued identification documents required to open an account. According to a recent report, despite low or irregular earnings, women save 10 to 15 percent of their income for various short and long-term goals. Not only do DFS providers need to be incentivized to tailor their products to female consumers but a broader effort focused on bringing women over that digital divide is also required.


ABSTRACT: In this study, we explore the role of telemedicine in reducing gender-based barriers women and girls in rural areas of Nepal are facing to access healthcare services. Data were collected through a mixed method consisting of questionnaires survey, in-depth interviews, and focus group discussions with mobile phone and video conference-based telemedicine users. Data were analysed through descriptive and thematic analysis. Results revealed that telemedicine reduced travel restrictions, treatment expenses, and apprehension regarding sexual and reproductive health consultation. Moreover, telemedicine decreased travel time, which helps women and girls access timely healthcare services and improve time management for household chores and other activities. The conclusion is that rural telemedicine tends to reduce gender-based barriers for women and girls in accessing healthcare services. Finally, policy recommendations are provided for expanding these initiatives in rural areas.


ABSTRACT: In this era of globalisation and technology, determining the gender of a person from forenames has numerous applications especially in the machine translation and natural language processing fields. In this paper, we used a supervised machine learning approach to classify 10000 first names into either a male or female name. The names were manually extracted from an online telephone directory and then manually classified into an appropriate category. We obtained the highest accuracy of 88.0% when using support vector machines while the Naïve Bayes produced the lowest accuracy of 84.7%. A total of 15 features were used in this study. Traditionally, such systems have relied on a name dictionary to output the gender of forenames. However, our proposed system can predict the gender of unseen or unknown names. Furthermore, our dataset consists of names from different origins such as European, African, Arabic, Indian and Chinese, unlike previous studies which use names from one origin only.


ABSTRACT: The internet has brought about a radical change in the way people communicate and relate to each other. Widespread use of this new system of communication has resulted in a shift in conventional attitudes in human relations. Some of its features are anonymity, virality or disinhibition, which in turn determine norms of interaction. This paper offers an analysis of gender-based harassment on the internet, using the case of Pikara Magazine (a Spanish feminist electronic magazine). The comments posted on this online magazine during 2015 have been analysed from a qualitative perspective (using grounded theory methodology), focusing on discovering the major discursive categories related to harassment behaviours, as well as the different strategies of response and resistance. The categories identified make up a system to be contrasted on future analysis. Finally, different ways of tackling this phenomenon through the social work discipline are also considered.
ABSTRACT: This paper argues that teacher training programs, with the objective of transforming gender norms in schools, should employ a critical pedagogy framework in order to achieve the transformational learning goals necessary to change the deep-seated beliefs and patterns of behavior that characterize these gender norms. Using document analysis, this study evaluates the teacher in-service training component of two school-based intervention programs, aimed at promoting gender equality in school communities. This paper finds that the trainings miss opportunities to employ elements of critical pedagogy and therefore, are not likely to create a transformative change around gender norms in schooling.

doi: 10.1109/ACCESS.2017.2744680.
http://dx.doi.org/10.1109/ACCESS.2017.2744680.
ABSTRACT: The underrepresentation of women in engineering remains a problem till this day where women made up 4% of its registered professional engineers in South Africa in 2014. The experience of women engineers in industry and women students in engineering courses can play a significant role in their decision to remain in engineering or pursue a different career path. The investigation of gender dynamics in small groups of engineering students, specifically focusing on the participation and role allocation of women students, can shed light on the experiences of women students in the engineering education environment. This study shows that, although women engineering students are still in the minority in engineering courses, many are active participants in groups and fulfil leadership roles in those groups.

ABSTRACT: Thai women are an increasingly present migrant group in rural Sweden. Often arriving through transnational marriage, women build lives and businesses in their respective Swedish communities while retaining ties to their rural regions of origin. This paper asks: How is translocalism produced and embedded in and from rural contexts through the workplace activities of Thai migrant women in Sweden? Using life course narratives of 11 Thai migrant women and interviews with rural actors in Thailand, this article examines the role of Thai women’s businesses in creating translocal connections between distant rural spaces. It finds that women actively engage in multiple rural areas as part of their daily work and business strategies. As shown by the research, Thai women migrants make rural-to-rural connections through familial and friend networks, material goods, and engagement with local rural communities. Moreover, practices are embedded and produced, through social connections and practices, within the rural areas women are closely tied to prior to migration. This paper shows the importance of women’s connections to rural localities in shaping their translocal practices. The paper argues daily connections between rural areas are closely tied to local and global gendered practices, norms, and expectations. It highlights the significance of rural networks in shaping translocal practices within migrant rural businesses.

Bibliography on “ICT for development (ICT4D)”

ABSTRACT: This study examines how increasing ICT penetration in sub-Saharan Africa (SSA) can contribute towards environmental sustainability by decreasing CO2 emissions. The empirical evidence is based on the Generalised Method of Moments and forty-four countries for the period 2000–2012. ICT is measured with internet penetration and mobile phone penetration while CO2 emissions per capita and CO2 emissions from liquid fuel consumption are used as proxies for environmental degradation. The following findings are established: First, from the non-interactive regressions, ICT (i.e. mobile phones and the internet) does not significantly affect CO2 emissions. Second, with interactive regressions, increasing ICT has a positive net effect on CO2 emissions per capita while increasing mobile phone penetration alone has a net negative effect on CO2 emissions from liquid fuel consumption. Policy thresholds at which ICT can change the net effects from positive to negative are computed and discussed. These policy thresholds are the minimum levels of ICT required, for the effect of ICT on CO2 emissions to be negative. Other practical implications for policy and theory are discussed.


ABSTRACT: If economic integration and mutual reliance between local or global entities result from a borderless and relatively free flow of production factors as well as goods and services, small business practice, innovation and risk ventures will objectively yield profits. In the context of BRICS11 BRICS is an acronym for the world’s major emerging economies Brazil, Russia, India, China, and South Africa. It was originally BRIC as coined by Goldman Sachs's Jim O’Neill excluding South Africa. These nations are projected, by 2050 to be wealthier than the current major economic powers. (Brazil, Russia, India, China, and South Africa) nations, have both phenomena enhanced rapid economic development? Using an unbalanced panel dataset for BRICS member states, we investigate these propositions by estimating the effects of: a comprehensive globalization index variable (KOF) as in Dreher (2006) and Samimi et al. (2014) and an opportunity total entrepreneurship activity (OTEA) variable à la Urbano and Aparicio (2016) through an Arellano-Bond model estimator first, then a dynamic estimation model next. Results show, after utilizing both estimation techniques, the variables were all positive and statistically significant, hence confirming the hypothesis. We posit the implementation of innovation-driven policies that will promote the movement of production factors, enhance South-South financial and regional trade agreements and sustain economic development in developing nations in general and BRICS economies in particular.


ABSTRACT: This paper advances the ICT adoption discourse to explore ICT mechanism use, adaptation and contextual influences on management strategies in Africa. A polar-type multiple case studies approach is used to guide empirical data collection across 10 individual cases. 21 interviews were conducted with top executives and these were corroborated with over 30 h of non-participant observations and archival documentation from these cases. Using a tripartite coding frame, thematic and content analyses were performed to identify patterns and themes in the collected data. Findings of this study evidence ICT use at firm level with significant links to local contextual factors. Additionally, whilst affirming relationships between size and adoption, the findings also suggest an inverted parallel between both variables. The paper contributes by empirically highlighting the influence of contextual factors on ICT use in road freight transportation as well as highlighting the potential for ICT developers and OEMs to acquire innovative input from local adaptation practices within the industry.
Bibliography on “intelligent transportation systems (ITS)”

ABSTRACT: There is an active contemporary debate about how emerging technologies such as automated vehicles, peer-to-peer sharing applications and the ‘internet of things’ will revolutionise individual and collective mobility. Indeed, it is argued that the so-called ‘Smart Mobility’ transition, in which these technologies combine to transform how the mobility system is organised and operates, has already begun. As with any socio-technical transition there are critical questions to be posed in terms of how the transition is managed, and how both the benefits and any negative externalities of change will be governed. This paper deploys the notion of ensuring and enhancing public value as a key governance aim for the transition. It sets out modes and methods of governance that could be deployed to steer the transition and, through four thematic cases explores how current mobility governance challenges will change. In particular, changing networks of actors, resources and power, new logics of consumption, and shifts in how mobility is regulated, priced and taxed – will require to be successfully negotiated if public value is to be captured from the transition. This is a critical time for such questions to be raised because technological change is clearly outpacing the capacity of systems and structures of governance to respond to the challenges already apparent. A failure to address both the short and longer-term governance issues locking the mobility system into transition paths which exacerbate rather than ameliorate the wider social and environmental problems that have challenged planners throughout the automobility transition.”.

ABSTRACT: Fully automated self-driving cars, with expected benefits including improved road safety, are closer to becoming a reality. Thus, attention has turned to gauging public perceptions of these autonomous vehicles. To date, surveys have focused on the public as potential passengers of autonomous cars, overlooking other road users who would interact with them. Comparisons with perceptions of other existing vehicles are also lacking. This study surveyed almost 1000 participants on their perceptions, particularly with regards to safety and acceptance of autonomous vehicles. Overall, results revealed that autonomous cars were perceived as a "somewhat low risk" form of transport and, while concerns existed, there was little opposition to the prospect of their use on public roads. However, compared to human-operated cars, autonomous cars were perceived differently depending on the road user perspective: more risky when a passenger yet less risky when a pedestrian. Autonomous cars were also perceived as more risky than existing autonomous trains. Gender, age and risk-taking had varied relationships with the perceived risk of different vehicle types and general attitudes towards autonomous cars. For instance, males and younger adults displayed greater acceptance. Whilst their adoption of this autonomous technology would seem societally beneficial – due to these groups’ greater propensity for taking road user risks, behaviours linked with poorer road safety – other results suggested it might be premature to draw conclusions on risk-taking and user acceptance. Future studies should therefore continue to investigate people’s perceptions from multiple perspectives, taking into account various road user viewpoints and individual characteristics.”.

ABSTRACT: Network coding is a data processing technique in which the flow of digital data is optimized in a network by transmitting a composite of two or more messages to make the network more robust. Network coding has been used in traditional and emerging wireless networks to overcome the communications issues of these networks. It also plays an important role in the area of vehicular ad-hoc networks (VANETs) to meet the challenges like high mobility, rapidly changing topology, and intermittent connectivity. VANETs consist of network of vehicles in which they communicate with each other to ensure road safety, free flow of traffic, and ease of journey for the passengers. It is now considered to be the most valuable concept for improving efficiency and safety of future transportation. However, this field has a lot of challenges to deal with. This paper presents a comprehensive survey of network coding schemes in VANETs. We have classified different applications like content distribution, multimedia streaming, cooperative downloading, data dissemination, and summarized other key areas of VANETs in which network coding schemes are implemented. This research work will provide a clear understanding to the readers about how network coding is implemented in these schemes in VANETs to improve performance, reduce delay, and make the network more efficient.


supervised, dictionary-based, and integrated (hybrid), and show that the integrated approach has the best performance with a precision of 85%. Furthermore, SAFAR recommends alternate routes to commuters if violence is detected farther up through the A-star (A*) algorithm. An online evaluation of SAFAR with 50 real users gave a precision of ~85% to identify violence locations. Finally, a subjective evaluation showed that SAFAR's performance is satisfactory.

doi: 10.1109/MITP.2017.3680957.
http://dx.doi.org/10.1109/MITP.2017.3680957.
ABSTRACT: Intelligent transportation systems (ITS) are one part of smart cities aimed at efficient public transport, smart parking, enhanced road safety, intelligent traffic management, on-vehicle entertainment, and so on. In ITS, roadside unit (RSU) deployment should be well designed because RSUs act as service providers and gateways to the Internet for vehicular users. The authors’ RSU deployment strategy simultaneously maximizes the communication coverage and reduces the energy consumption of RSUs. They first formulate a multiobjective optimization RSU deployment problem and solve it through an evolutionary algorithm. Then they conduct extensive simulations; results demonstrate that the proposed strategy significantly improves both energy efficiency and network connectivity.

ABSTRACT: In the past decade, technologies in vehicles have been rapidly advancing creating both a new type of "on the road" entertainment and safer environment while driving. Technologies such as anti-lock brake systems, steering assist, and in some cases autonomous driving, manufactures nearly eliminated the dangers of driving. To maintain the advances in safe technologies, it is vital to establish a strong security system for automotive networks and is crucial to advance the state of the art in automobile security. Motivated by this, one of the main goals of this research paper is to define a threat environment for CAR networks by discussing the existing security vulnerabilities and threats/attacks that an automobile network is currently facing. To address these security challenges, we also present a distributed firewall system to protect a CAR network from both internal and external networks. ".

ABSTRACT: Classification of vehicles is an important part of an Intelligent Transportation System. In this study, image processing and machine learning techniques are used to classify vehicles in dedicated lanes. Images containing side view profile of vehicles are constructed using a commercially available light curtain. This capability makes the results robust to the variations in operational and environmental conditions. Time warping is applied to compensate for speed variations in traffic. Features such as windows and hollow areas are extracted to discriminate motorcycles against automobiles. The circularity and skeleton complexity values are used as features for the classifier. K-nearest neighbor and decision tree are chosen as the classifier models. The proposed method is evaluated on a public highway and promising classification results are achieved.

doi: 10.1109/ACCESS.2017.2752420.
http://dx.doi.org/10.1109/ACCESS.2017.2752420.
ABSTRACT: The Internet of Vehicle (IoV) utilizes networks to conduct message exchange and related services or application. In recent years, smart cities and IoVs have become areas of interest in the new generation Internet of Things development, especially since the development of intelligent transportation system has focused on bettering traffic conditions. This paper proposes establishing an intelligent transportation system with a network security mechanism in an IoV environment, with emphasis on the following aspects: 1) this paper integrates intelligent transportation systems in traffic signal control to aid emergency vehicles in more promptly arriving at its destination; 2) in the case of traffic incidents, this paper’s approach allows regular vehicles to obtain proof of incident from pertaining authorities and learn about nearby vehicles global positioning system information, such as position and speed, and utilize their car camcorder data for proving purposes; and 3) this paper combines roadside units (RSUs) with traffic signal control and transmits important information to the certificate authority (CA) for storage. Given that RSUs are limited in computation ability and storage space, we can assess and filter the information before sending it to the CA, reducing RSUs computational burden and storage space usage. This paper satisfies IoVs network security requirements of authentication, non-repudiation, conditional anonymity, and conditional untraceability, and, as seen from experiment results, the proposed method is superior to that of other studies.


ABSTRACT: In this paper, a novel secure information exchange scheme has been proposed for MIMO vehicular ad hoc networks (VANETs) through physical layer approach. In the scheme, a group of On Board Units (OBUs) exchange information with help of one Road Side Unit (RSU). By utilizing the key signal processing technique, i.e., Direction Rotation Alignment technique, the information to be exchanged of the two neighbor OBUs are aligned into a same direction to form summed signal at RSU or external eavesdroppers. With such summed signal, the RSU or the eavesdropper cannot recover the individual information from the OBUs. By regulating the transmission rate for each OBU, the information theoretic security could be achieved. The secrecy sum-rates of the proposed scheme are analyzed following the scheme. Finally, the numerical results are conducted to demonstrate the theoretical analysis.

Bibliography on “internet of things (IoT)”


ABSTRACT: Internet of Things (IoT) has led to the development of smart projects by connecting heterogeneous devices and has accelerated the global growth by providing digital services to the users. The Smart City Project is very complex concept and has many hurdles in its way and many of the hurdles (Digitization services) can easily be solved by IoT. Urban IoT, is designed to support the future vision of smart cities which supported the new hybrid technologies and provide the value added services to the citizens. In this Urban IoT framework the first layer is Data Layer. In Data layer, sensor platform uses the optimized AODV-SPEED protocol (Hybrid Approach), proposed in this paper. Hybrid approach has shown improvement over delay, energy, miss ratio of the packet transmission and packet delivery rate over traditional SPEED protocol which is suitable for IoT applications. This article also identifies the framework, challenges and trends of Smart city IoT and use case for the smart street highlights the importance of proposed structure. Furthermore, Smart City projects are discussed to recognize the importance of IoT in smart cities and its future. “

**ABSTRACT:** The number of people with a chronic disease is rapidly increasing, giving the healthcare industry more challenging problems. To date, there exist several ontology and IoT-based healthcare systems to intelligently supervise the chronic patients for long-term care. The central purposes of these systems are to reduce the volume of manual work in recommendation systems. However, due to the increase of risk and uncertain factors of the diabetes patients, these healthcare systems cannot be utilized to extract precise physiological information about patient. Further, the existing ontology-based approaches cannot extract optimal membership value of risk factors; thus, it provides poor results. In this regards, this paper presents a type-2 fuzzy ontology–aided recommendation systems for IoT-based healthcare to efficiently monitor the patient’s body while recommending diets with specific foods and drugs. The proposed system extracts the values of patient risk factors, determines the patient’s health condition via wearable sensors, and then recommends diabetes-specific prescriptions for a smart medicine box and food for a smart refrigerator. The combination of type-2 Fuzzy Logic (T2FL) and the fuzzy ontology significantly increases the prediction accuracy of a patient’s condition and the precision rate for drug and food recommendations. Information about the patient’s disease history, foods consumed, and drugs prescribed is designed in the ontology to deliver decision-making knowledge using Protégé Web Ontology Language (OWL)-2 tools. Semantic Web Rule Language (SWRL) rules and fuzzy logic are employed to automate the recommendation process. Moreover, Description Logic (DL) and Simple Protocol and RDF Query Language (SPARQL) queries are used to evaluate the ontology. The experimental results show that the proposed system is efficient for patient risk factors extraction and diabetes prescriptions.


**ABSTRACT:** The Internet of Things (IoT) comprises several communication network technology standards and most of them are currently operating in silos. However, to achieve the IoT paradigm’s main goal, which is to deliver efficient and high-quality smart services, interoperation among various IoT standards is necessary. Therefore, interoperability and quality of service (QoS) provisioning are two of the main requirements for current and future standards operating within the IoT ecosystem. To understand how current standards can or cannot meet these requirements, first, we analyze high-level technical standards for some application domains within the IoT ecosystem. Second, with a focus on some common communication network standards, we present the QoS requirements of smart services in the IoT. Finally, we highlight the mechanisms employed by these standards in enabling interoperability and QoS in the IoT environment.


**ABSTRACT:** Benefits of Internet of Things and cloud-fog-edge computing are associated with the risks of confidentiality, integrity, and availability related with the loss of information, denial of access for a long time, information leakage, conspiracy and technical failures. In this article, we propose a configurable, reliable, and confidential distributed data storage scheme with the ability to process encrypted data and control results of computations. Our system utilizes Redundant Residue Number System (RRNS) with new method of error correction codes and secret sharing schemes. We introduce the concept of an approximate value of a rank of a number (AR), which allows us to reduce the computational complexity of the decoding from RNS to binary representation, and size of the coefficients. Based on the properties of the approximate value and
arithmetic properties of RNS, we introduce AR-RRNS method for error detection, correction, and controlling computational results. We provide a theoretical basis to configure probability of information loss, data redundancy, speed of encoding and decoding to cope with different objective preferences, workloads, and storage properties. Theoretical analysis shows that by appropriate selection of RRNS parameters, the proposed scheme allows not only increasing safety, reliability, and reducing an overhead of data storage, but also processing of encrypted data.

doi: 10.1109/MCOM.2017.17000154.
http://dx.doi.org/10.1109/MCOM.2017.17000154.
ABSTRACT: Increased intelligence and automation in smart grid results in many heterogeneous applications benefiting from the Internet of Things, such as demand response, energy delivery efficiency/reliability, and fault recovery. However, vulnerabilities in smart grid arise due to public communication infrastructure and Internet-based protocols. To deal with security threats, energy big data should be thoughtfully stored and processed to extract critical information, and security and blackout warnings should be given in an early stage. This work gives a comprehensive tutorial and survey to highlight research challenges on the aforementioned issues in the Internet-of-Things-based smart grid. We demonstrate that a stealthy and blind energy big data attack can be launched using a replay scheme. Also, we elucidate an intuitive geometric viewpoint for this type of attack. The proposed attack can bypass bad data detection successfully using either DC or AC state estimation.

doi: 10.1109/MCOM.2017.8067682.
http://dx.doi.org/10.1109/MCOM.2017.8067682.
ABSTRACT: The articles in this special section address smart energy applications from the perspective of the Internet of Things (IoT). For smart grid applications, we need to predict the electrical load so that the underlying smart grid can effectively balance the power supply and demand. In general, predictions are made based on the data obtained using IoT and smart meter technologies. The (IoT) could accelerate establishment of such infrastructures. With IoT technologies, many more devices could be controlled and managed through the Internet; data pertaining to the grid, commercial buildings, and residential premises can readily be collected and utilized. To derive valuable information from the data, further information and data processing become essential.

doi: 10.1109/ICITECH.2017.8079997
http://dx.doi.org/10.1109/ICITECH.2017.8079997
ABSTRACT: In the digital era, the Big Data concept started to play a tremendous role in the public sector. Jordan started an E-Government program to provide citizens with electronic services. In this paper; the role of Open Big Data in the Jordanian public sector is discussed. We will evaluate the E-Government program in Jordan which is the driver behind collecting Big Data and making it available for its citizens. A model is introduced to enhance the usage of Big Data with the National Center for Security and Crises Management (NCSCM) playing a leading role.

ABSTRACT: The wide adoption of smart city solutions has proven that information and
communication technologies can effectively address many of the challenges in modern cities such as safety, mobility, and sustainability. A contemporary challenge in smart city environments is to improve solution efficiencies by constructing systems of systems where isolated domains are seamlessly combined to render integrated services to stakeholders and end users. This paper proposes a coordination and integration framework that supports day-to-day intelligent transportation operations in smart cities in the context of the Internet of Things. The framework defines three pillars to combine and integrate dispersed cyber-physical components providing means to support coordinated planning among city stakeholders. The paper discusses the operation of these pillars and demonstrates how they can be used to enable the dynamic provisioning of integrated intelligent systems of systems transportation operations.


ABSTRACT: Abstract Localization in both indoor and outdoor environments is a long-studied problem. Using Smartphone for localization has also gained popularity recently. However, none of the existing solutions consider seamless localization and tracking of individuals in both indoor and outdoor stretches with significant accuracy. In this paper, we propose a human identification, monitoring, and location tracking system, called SmartITS, which continuously tracks MAC ids of user equipment (Smartphones, BLE tags, and Bluetooth devices) and can provide a Google map-based visualization of their trajectories. Our tracker is a portable mobile entity comprising of a Smartphone and an external Wi-Fi adapter which does not require any extra hardware infrastructure to deploy as well as does not need any modification in hardware design at all. Extensive testing with a prototype testbed system in densely populated areas shows that the SmartITS system can seamlessly track user trajectories in indoor and outdoor stretches with a high aggregate location accuracy which is up to 44.49% more accurate than the simple GPS based location tracking system. Our proof-of-concept prototype shows the usability of SmartITS architecture. We also perform several experiments for evaluating the Smartphone's performance as a scanner and as a sensor tag.


ABSTRACT: Rapid developments in hardware, software, and communication technologies have allowed the emergence of Internet-connected sensory devices that provide observation and data measurement from the physical world. By 2020, it is estimated that the total number of Internet-connected devices being used will be between 25 and 50 billion. As the numbers grow and technologies become more mature, the volume of data published will increase. Internet-connected devices technology, referred to as Internet of Things (IoT), continues to extend the current Internet by providing connectivity and interaction between the physical and cyber worlds. In addition to increased volume, the IoT generates Big Data characterized by velocity in terms of time and location dependency, with a variety of multiple modalities and varying data quality. Intelligent processing and analysis of this Big Data is the key to developing smart IoT applications. This article assesses the different machine learning methods that deal with the challenges in IoT data by considering smart cities as the main use case. The key contribution of this study is presentation of a taxonomy of machine learning algorithms explaining how different techniques are applied to the data in order to extract higher level information. The potential and challenges of machine learning for IoT data analytics will also be discussed. A use case of applying Support Vector Machine (SVM) on Aarhus Smart City traffic data is presented for a more detailed exploration.

ABSTRACT: The central role in development of information society is taken by smart cities and their novel services through the use of modern technology and smart solutions. The key enabler and driver of smart cities is Internet of Things (IoT). In this paper, we have conducted a systematic literature review in order to investigate proposed smart city services driven by IoT. We have formulated the review protocol to define the research question/s, search strategy, selection criteria, study quality assessment, and data extraction strategy. We have defined the following main research question: What are the reported applications of Internet of Things in the development of smart city services? The papers were categorized by the smart city services they proposed or described. We have recognized the following categories: traffic and transport; environment monitoring; accessibility & healthcare; waste management; public lighting; energy management; city infrastructure; and other.


ABSTRACT: As the Internet of Things (IoT) and the Wireless Sensor Network (WSN) are becoming a reality, their interconnections for smart devices are increasing. Smart devices are integrated with sensors and embedded system to offer advanced services, which combined with the IoT to developing a smart city. The Internet of Things shall be able to connect the physical objects through sensors, actuator networks and then control them. It describes the most significant work performed in the area of WSN combined with the IoT for creating a smart city. This paper also focus specifically to an urban IoT system that shows a broad category, are characterized by their specific application domain. Sensing, actuating and controlling for developing an urban area using IoTs are the most advanced communication technologies to support services for smart city and for citizens. This paper also provides a comprehensive survey of smart city concept, technologies, various challenges and architecture.


ABSTRACT: Real-time asset tracking in indoor mass production manufacturing environments can reduce losses associated with pausing a production line to locate an asset. Complemented by monitored contextual information, e.g. machine power usage, it can provide smart information, such as which components have been machined by a worn or damaged tool. Although sensor based Internet of Things (IoT) positioning has been developed, there are still key challenges when benchmarked approaches concentrate on precision, using computationally expensive filtering and iterative statistical or heuristic algorithms, as a trade-off for timeliness and scalability. Precise but high-cost hardware systems and invasive infrastructures of wired devices also pose implementation issues in the Industrial IoT (IIoT). Wireless, self-powered sensors are integrated in this paper, using a novel, communication-economical RSSI/ToF ranging method in a proposed semantic IIoT architecture. Annotated data collection ensures accessibility, scalable knowledge discovery and flexibility to changes in consumer and business requirements. Deployed at a working indoor industrial facility the system demonstrated comparable RMS ranging accuracy (ToF 6m and RSSI 5.1m with 40m range) to existing systems tested in non-industrial environments and a 12.6–13.8m mean positioning accuracy. 

ABSTRACT: As a new revolution of the Internet, Internet of Things (IoT) is rapidly gaining ground as a new research topic in many academic and industrial disciplines, especially in healthcare. Remarkably, due to the rapid proliferation of wearable devices and smartphone, the Internet of Things enabled technology is evolving healthcare from conventional hub based system to more personalised healthcare systems (PHS). However, empowering the utility of advanced IoT technology in PHS is still significantly challenging in the area considering many issues, like shortage of cost-effective and accurate smart medical sensors, unstandardised IoT system architectures, heterogeneity of connected wearable devices, multi-dimensionality of data generated and high demand for interoperability. In an effect to understand advance of IoT technologies in PHS, this paper will give a systematic review on advanced IoT enabled PHS. It will review the current research of IoT enabled PHS, and key enabling technologies, major IoT enabled applications and successful case studies in healthcare, and finally point out future research trends and challenges.


ABSTRACT: Disastrous events are cordially involved with the momentum of nature. As such mishaps have been showing off own mastery, situations have gone beyond the control of human resistive mechanisms far ago. Fortunately, several technologies are in service to gain affirmative knowledge and analysis of a disaster’s occurrence. Recently, Internet of Things (IoT) paradigm has opened a promising door toward catering of multitude problems related to agriculture, industry, security, and medicine due to its attractive features, such as heterogeneity, interoperability, light-weight, and flexibility. This paper surveys existing approaches to encounter the relevant issues with disasters, such as early warning, notification, data analytics, knowledge aggregation, remote monitoring, real-time analytics, and victim localization. Simultaneous interventions with IoT are also given utmost importance while presenting these facts. A comprehensive discussion on the state-of-the-art scenarios to handle disastrous events is presented. Furthermore, IoT-supported protocols and market-ready deployable products are summarized to address these issues. Finally, this survey highlights open challenges and research trends in IoT-enabled disaster management systems.


ABSTRACT: In many Internet of Thing (IoT) application domains security is a critical requirement, because malicious parties can undermine the effectiveness of IoT-based systems by compromising single components and/or communication channels. Thus, a security infrastructure is needed to ensure the proper functioning of such systems even under attack. However, it is also critical that security be at a reasonable resource and energy cost. In this article, we focus on the problem of efficiently and effectively securing IoT networks by carefully allocating security resources in the network area. In particular, given a set of security resources R and a set of attacks to be faced A, our method chooses the subset of R that best addresses the attacks in A, and the set of locations where to place them, that ensure the security coverage of all IoT devices at minimum cost and energy consumption. We model our problem according to game theory and provide a Pareto-optimal solution in which the cost of the security infrastructure, its energy consumption, and the probability of a successful attack are minimized. Our experimental evaluation shows that our technique improves the system robustness in terms of packet delivery rate for different network topologies. Furthermore, we also provide a method for handling the computation of the resource allocation plan for large-scale networks scenarios, where the optimization problem may require an unreasonable amount of time to be solved. We show how our proposed method drastically reduces the computing time, while providing a reasonable approximation of the optimal solution.
doi: 10.1109/MITP.2017.3680952.
http://dx.doi.org/10.1109/MITP.2017.3680952.

ABSTRACT: In the 21st century, the Internet of Things (IoT) will control critical infrastructure such as smart cities and the smart power grid. The author proposes a new approach to achieve exceptional performance, cybersecurity, and privacy in a green Industrial and Tactile IoT, in datacenters, and in big data green cloud computing systems. The combination of a software-defined networking (SDN) control plane, deterministic communications, and lightweight layer-2 encryption offers several benefits. For example, an SDN control plane can embed millions of deterministic virtual networks (DVNs) into layer 2. All congestion, interference, denial-of-service attacks, and cyberattacks targeting a DVN can be removed in layer 2. Unauthorized packets from a cyberattacker can be detected in layer 2 in microseconds. IoT delays can be reduced to the speed-of-light. Finally, exceptional privacy can be achieved using lightweight encryption with long keys. A green Industrial and Tactile IoT can embed millions of DVNs to enable smart cities, and can also pay for itself quickly through reduced capital and energy costs. A field-programmable gate array hardware testbed illustrates the concepts.


ABSTRACT: Due to the pervasive diffusion of personal mobile and IoT devices, many “smart environments” (e.g., smart cities and smart factories) will be, among others, generators of huge amounts of data. To provide value-add services in these environments, data will have to be analysed to extract knowledge. Currently, this is typically achieved through centralised cloud-based data analytics services. However, according to many studies, this approach may present significant issues from the standpoint of data ownership, and even wireless network capacity. One possibility to cope with these shortcomings is to move data analytics closer to where data is generated. In this paper we tackle this issue by proposing and analysing a distributed learning framework, whereby data analytics are performed at the edge of the network, i.e., on locations very close to where data is generated. Specifically, in our framework, partial data analytics are performed directly on the nodes that generate the data, or on nodes close by (e.g., some of the...
data generators can take this role on behalf of subsets of other nodes nearby). Then, nodes exchange partial models and refine them accordingly. Our framework is general enough to host different analytics services. In the specific case analysed in the paper we focus on a learning task, considering two distributed learning algorithms. Using an activity recognition and a pattern recognition task, both on reference datasets, we compare the two learning algorithms between each other and with a central cloud solution (i.e., one that has access to the complete datasets). Our results show that using distributed machine learning techniques, it is possible to drastically reduce the network overhead, while obtaining performance comparable to the cloud solution in terms of learning accuracy. The analysis also shows when each distributed learning approach is preferable, based on the specific distribution of the data on the nodes.


ABSTRACT: Wireless sensor network (WSN) systems are typically composed of thousands of sensors that are powered by limited energy resources. To extend the networks longevity, clustering techniques have been introduced to enhance energy efficiency. This paper presents a survey on clustering over the last two decades. Existing protocols are analyzed from a quality of service (QoS) perspective including three common objectives, those of energy efficiency, reliable communication and latency awareness. This review reveals that QoS aware clustering demands more attention. Furthermore, there is a need to clarify how to improve quality of user experience (QoE) through clustering. Understanding the users’ requirements is critical in intelligent systems for the purpose of enabling the ability of supporting diverse scenarios. User awareness or user oriented design is one remaining challenging problem in clustering. In additional, this paper discusses the potential challenges of implementing clustering schemes to Internet of Things (IoT) systems in 5G networks. We indicate that clustering techniques enhanced with smart network selection solutions could highly benefit the QoS and QoE in IoT. As the current studies for WSNs are conducted either in homogeneous or low level heterogeneous networks, they are not ideal or even not able to function in highly dynamic IoT systems with a large range of user scenarios. Moreover, when 5G is finally realized, the problem will become more complex than that in traditional simplified WSNs. Several challenges related to applying clustering techniques to IoT in 5G environment are presented and discussed.

Bibliography on “regulatory/statistical report”


https://search.proquest.com/docview/1949317581?accountid=41838

ABSTRACT: We have made some positive revisions to the mobile forecast in this quarter to account for the latest data from Q217. We note that the market continues to perform largely in line with our forecasts. TPG Telecom’s aggressive bid to become the fourth national mobile carrier in the country over the next three years will bode well for mobile sector competition. Operators are aggressively developing their nationwide 3G/ LTE services and bolstering their coverage in
Regional Australia as 2G networks are being terminated. Furthermore, we note that MTR cuts effective from January 2016 have impacted ARPs, with operators clearly focusing on data services to recoup lost revenues. This is apparent due to the respective shutdown of their 2G networks to gain capacity, with Telstra leading in late-2016 before being joined by its rivals in 2017. The fixed market is dominated by the National Broadband Network, which passed 4mn premises in February 2017. Greater flexibility in terms of technology, with the addition of satellite and cable and the move towards vectoring and fibre to the node has helped uptake. On the content side, all operators are looking to add premium services but they face strong competition from independent providers such as Netflix.

https://search.proquest.com/docview/1951526439?accountid=41838
ABSTRACT: A number of developments within the market will pose upside risks to our Caribbean outlook and this will affect our approach to amending our forecasts in the coming quarters. In the Dominican Republic, we are anticipating the entrance of low cost player Viettel to unlock further growth opportunities in the mobile market. In Trinidad and Tobago as well as Haiti, we are closely watching the regulators in both markets, where 4G licences are to be issued.

https://search.proquest.com/docview/1949724443?accountid=41838
ABSTRACT: 3G/4G will remain a core driver of growth in Central America until at least 2021. New available spectrum will help some markets outperform. This growth will also be supported by opportunities in mobile broadband for rural areas without wireline infrastructure. Broadband penetration will benefit from emphasis on national broadband policies. The wireline segment will still be impacted by cheaper mobile and IP substitution.


https://search.proquest.com/docview/1950190427?accountid=41838
ABSTRACT: Colombia’s mobile market has become more competitive with MVNOs, to the detriment of network operators’ subscriber figures. With a heavily prepaid saturated market, operators are increasing focus on non-voice services for revenue growth and thus compete to expand their 4G LTE networks. 3G/4G uptake will support growth in the overall mobile market. A new converged regulator would streamline licensing processes and would attract greater investment. This will help with consolidation efforts in the wireline segment, eventually leading to more competitive country-wide operators. As fibre expands, fixed and mobile network operators will be looking to offer bundles as a way to retain and upsell customers. Untapped demand and Colombia’s improving economic conditions will contribute to the uptake of these services, but expansion to the rich Bogotá market will be key for a successful converged services strategy in the country.

https://search.proquest.com/docview/1946675452?accountid=41838
ABSTRACT: The overall outlook for the Egyptian telecoms sector remains positive with significant organic growth prospects still available in the mobile sector, and the 3G/4G segment, in particular. We have made some positive forecast revisions to our outlook, and we expect increased competition in the fixed and mobile sectors in 2017 and over the next five years to 2021. The mobile market has recovered from the losses seen in 2014 and 2015, with three operators combined adding an impressive 3.1mn subscribers in 2016 and an additional 2.55mn
subscribers in H117 alone. Telecom Egypt (TE) and the three established mobile operators Orange, Vodafone and Etisalat Misr, are expected to launch 4G services in Q417, increasing competition in the mobile sector and spurring mobile data growth. Two other factors may affect telecoms market dynamics in 2017: we do not yet know if or how the currency devaluation of Q416 will impact on the sector and TE's anticipated sale of its 45% stake in Vodafone could result in a new investor entering the market.

https://search.proquest.com/docview/1950193943?accountid=41838
ABSTRACT: The market continues to perform in line with BMI forecasts and we have made only minor forecast adjustments in the latest Q417 update. H117 mobile net additions were higher than expected, owing largely to strong M2M and connected device growth in the market. We note that data usage has driven demand in the French market, meaning that operators are now looking to focus on content. This has led to the introduction of unlimited data plans, to democratise usage, and the launch and acquisition of key content services and rights. Altice has been the main protagonist, with expensive sports acquisitions, but this should not obscure continuing investments into networks, which are key in order to deliver the best quality of service.


https://search.proquest.com/docview/1954015720?accountid=41838
ABSTRACT: We have not made major forecast revisions in the latest Q417 quarterly report update. The Iraqi telecommunications market continues to perform in accordance with our forecast. The market contracted by over 10% in 2015, largely due to the Islamic State activity in the country. The market posted further losses in Q116 before returning to growth in Q2 and H2 of 2016, and in Q217. We expect the mobile market to continue growing as we expect violence in the country to decrease and stability levels to increase. However, ongoing conflict in certain areas and any potential unrest resulting from the Kurdish independence referendum on 25th September 2017 present a downside risk. Regardless of challenges to the mobile market, we remain of the opinion that the long-term outlook of the market remains positive with growth potential emanating from 3G uptake. The Iraqi government's efforts to auction a fourth mobile operating licence in Q416 yielded poor results as no major investors have been interested so far: high security risks and a poor operating environment are the likely factors discouraging new telecoms sector investment.


prevented by ITU Library
Library@itu.int
ABSTRACT: MENA's telecoms markets are at very different levels of development, from the saturated and data-intensive markets of the GCC to the emerging markets in North Africa and war-torn states fringing the region. Subscription and revenue growth will be uneven, as more mature markets face fewer opportunities for subscription growth, while the emerging markets present the biggest opportunity for long-term growth. 4G migration offers new revenue diversification opportunities for mobile and broadband players: in developing markets, such opportunities will be hard to unlock owing to low consumer spending power and a lack of relevant content and services; however, the developed markets harbour large and relatively untapped enterprise and connected home user bases, and players such as Zain, Ooredoo and Etisalat are moving quickly to exploit these opportunities.


https://search.proquest.com/docview/1950193943?accountid=41838
ABSTRACT: Organic growth in the mobile segment will remain slow as the penetration rate inches towards the 134% mark. The 3G/4G LTE segment will see steady growth as operators continue to invest in high-speed advanced solutions across the country. Furthermore, the regulators blocked the planned merger of Vodafone and Sky in early 2017, amid concerns that the enlarged entity would have dominated New Zealand’s wireline and mobile broadband markets. That decision seems likely to stand given the small size of the market and the small pool of service providers available to consumers. We believe the merger would have driven innovation in product pricing and bundling and made greater use of national and rural fibre networks. The decision to block the merger, on the other hand, benefits 2degrees, the smallest mobile operator, giving it time to further develop its premium converged services business.

https://search.proquest.com/docview/1947621443?accountid=41838
ABSTRACT: We have made no major revisions to the Nigerian telecoms market outlook for Q417. Overall market growth has been weighed down by the poor performances of both Airtel, 9mobile (Etisalat) and MTN, with the market shedding 10.209m subscribers in Q217. We believe there is still room for operators to expand organically, but that will entail expanding networks beyond core urban markets where returns on network investments will be limited as a result of low customer expenditure power. Etisalat walked away from its business, the decision will have far-reaching implications for Nigeria's highly competitive mobile market. Emerging Markets Telecommunications Service (EMTS) took over Etisalat's operations with the backing of the government, and rebranded to 9mobile. We expect that competition will heat up further in the 3G/4G segment as Airtel launched its 4G service with ntel also expanding to Port Harcourt. In the fixed voice market, we expect the combination of mobile substitution as well as CDMA and inactive fixed voice disconnection to continue decreasing fixed voice access.

https://search.proquest.com/docview/1954015436?accountid=41838
ABSTRACT: The disconnection of 2mn inactive SIMs in early 2017 reflects the saturated nature of the Russian mobile market. However, this should not deter operators from investing in 4G as there are ample opportunities for them in terms of premium data service upselling. While operators are focused on upgrading networks, they are doing so with a long-term view to monetising demand for non-voice services, particularly video-based content. However, restricted access to foreign-made equipment and internationally hosted applications will impede these long-term expansion initiatives.
https://search.proquest.com/docview/1951715629?accountid=41838
ABSTRACT: South Korean operators are investing heavily in Internet of Things (IoT) strategies and rolling out their own dedicated NB-IoT and LPWA networks. The rapid growth of Kakao Bank is positive for the expansion of fintech in South Korea, with regulators suggesting that they are open to establishing more online banks. We expect the impact of a change of president on the ICT sector to be muted in the near term, and the objectives outlined by the government for the ICT sector in 2017 to be pursued following a liberal as well as conservative victory. The South Korean government has adopted a 'universal' mobile package that all operators will have to offer in 2018, as part of its ongoing efforts to reduce the cost of mobile services. A universal basic mobile package and fewer bureaucratic hurdles will largely benefit MVNOs, as their profits from basic services will be less impacted and barriers for new entrants will be lowered.


https://search.proquest.com/docview/1949724170?accountid=41838
ABSTRACT: We retain our view that the Taiwanese telecommunications market is highly competitive and home to a tech-savvy population, propelling the market with high usage of advanced mobile and wireline services. The market continues to perform in line with our forecasts and there have been no major changes to the five-year outlook. We note that the three major operators command close to 90% of the mobile market and we believe pressure for smaller operators to merge or be acquired will intensify in 2017 as unlimited mobile data plans are still the norm in Taiwan and this strategy to encourage subscribers to increase data consumption will continue to eat into ARPU in the medium term. As the country approaches the 100% 4G LTE penetration rate, and no more room for 2G/3G migration, operators will be looking to enhance their revenue streams in the coming years. Focusing on expanded services and deepening their relations with existing customers by upselling premium attractive offers till the advent of 5G will fuel growth beyond 2017 and out to 2021. Over the medium-term, operator infrastructure investments remain crucial as 5G and connected technology of the future will have to provide long-term growth in a technologically saturated market.

https://search.proquest.com/docview/1953256755?accountid=41838
ABSTRACT: The successful uptake of the recently-launched 4G services in Algeria and Tunisia demonstrate the great potential for advanced mobile services in North Africa. Even if these markets will remain centred around voice services, expensive wireline broadband services caused by stagnant markets imply low-cost mobile broadband is likely to be a main growth driver for the next five years. However, given the weak macroeconomic outlook, players will keep resorting to price competition, squeezing returns on investment.

https://search.proquest.com/docview/1949722837?accountid=41838
ABSTRACT: We hold our positive medium-term view for the Ugandan mobile market. Mobile market growth will be supported by low penetration rates. Although operators continue to make modest investments in advanced data networks, MFS is likely to remain the primary key VAS in the mobile market as traction in the uptake of advanced mobile data services remains slow. Low spending powers, poor urbanisation rates and chronic poverty all constrain premium service upselling. Additionally, BMI is of the view that low disposable incomes will constrain the telecommunications market growth in general with limited access to devices keeping a lid on the
market's true potential. Nevertheless, the long-term view remains positive as organic growth opportunities will be present in the market for an extended period of time.

https://search.proquest.com/docview/1951716579?accountid=41838
ABSTRACT: We keep a positive outlook for the market and expect it to continue its growing trend, despite two quarters of contraction. Our outlook is underpinned by the launch of two MVNOs for the first time, high disposable incomes and a strong influx of migrants. Competition is intense, as Etisalat and du aggressively invest in technological innovation, network and new products and services. This fierce competition has supported technological uptake, and we believe 4G and 4.5G LTE-Advanced will be major growth drivers by the latter years of our forecast to 2021, complemented by price-competitive value-added services and content.

https://search.proquest.com/docview/1950191129?accountid=41838
ABSTRACT: Before an expected bout of consolidation, which has yet to happen, there has been strong competition in the mobile market, led by the latter's Un-Carrier strategy. All operators offer unlimited data plans to meet the consumer demand for online video. This has had an impact on ARPU and profitability, none more so than for AT&T and Verizon, which do not have sufficient network advantage to demand high prices.


https://search.proquest.com/docview/1950188824?accountid=41838
ABSTRACT: We have not made significant forecast revisions for the Q417 update as the Zambia and Zimbabwe markets continue to perform in line with our forecasts. In Zimbabwe, we expect mobile subscription growth to remain in positive territory throughout our forecast period, driven by increasing price competition and network expansion to previously underserved areas of the country. The government seems keen on dominating all aspects of the telecoms sector, and while unlikely, we cannot rule out that Econet might decide to exit the market, as the negatives outweigh the positives, especially recent decisions impact its profitability. In Zambia, mobile subscriptions will grow positively out to 2021. Advanced mobile data services provide a useful opportunity for the operators to diversify their revenue streams away from traditional voice services. Unified licensing will create a more level playing field in Zambia’s telecoms market, although economies of scale will see the three principal mobile-centric players continue to dominate.

Bibliography on “satellite communications”

doi: 10.1109/MAES.2017.160161.
ABSTRACT: In today's world, with time at a premium, people increasingly use aircraft for travel and for transporting goods from one place to another. This has resulted in greater chances of aircraft accidents. There are many reasons for these accidents, ranging from pilot error to instrument or machinery failure. Basically, there are five phases of air travel during which these accidents can occur: take off, initial climb, en-route, landing-approach, and touchdown. In the
In the last few years, the accidents during the en-route phase are on the increase, e.g., from 2012 till 2014 they have increased from 3 in 2012 to 8 in 2013 to 13 in 2014.

Broumandan, A., R. Siddakatte, and G. Lachapelle. "Feature Article: An Approach to Detect GNSS Spoofing." IEEE Aerospace and Electronic Systems Magazine, 32, no. 8 (2017): 64-75. doi: 10.1109/MAES.2017.160190. http://ieeexplore.ieee.org/document/8068041/. ABSTRACT: GNSS signal quality monitoring and authenticity verification is gaining importance as different types of interference signals including jamming and spoofing are becoming more likely. There have been several studies on jamming and spoofing detection at various levels of GNSS receiver operation layers. Spoofing signals are structural interference that take advantage of the known structure of legitimate signals and try to deceive their target receiver into a false position and/or timing solution. This becomes much more important if the receiver is used in safety-of-life applications [1]–[5]. The features of spoofing signals are similar to those of authentic GNSS signals; therefore, a stand-alone GNSS receiver may face challenges in detecting this type of interference. Spoofing signals can be designed to mislead the tracking procedure of GNSS receivers by generating synchronized pseudo random noise (PRN) codes, thereby leading to counterfeit correlation peaks. This means that the PRN index and signal parameters such as Doppler frequencies and code delays of spoofing signals match those of the authentic ones. These fake correlation peaks can overlay the authentic ones, distort the normal shape of authentic correlation peaks, and gradually misdirect the tracking process of the target receiver. Detection and mitigation of spoofing attacks on GNSS receivers in tracking mode have become one of the important antispooﬁng topics. In [4]–[6], the effect of interaction between authentic and spoofing peaks on the tracking process of a GNSS receiver is analyzed. Most spoofing detection metrics are designed to detect a spoofing attack assuming there are only two states, namely, clean data or a spoofing attack [7]–[10]. More specifically the spoofing detection threshold for a given probability of false alarm is set in the presence of a clean data set. However, in real operational conditions there might be several situations in which the spoofing detection test statistics exceed the predefined threshold due to other sources of interference signals and cause false spoofing detection. For instance, [3] has proposed a spoofing countermeasure method based on monitoring the receiver's automatic gain control (AGC) gain level. It is shown that the presence of spoofing signals increases the power content of the received signals, leading to changes in the AGC level. However, the AGC gain can be disrupted by various interfering signals.

Leclère, J., C. Botteron, and P. A. Farine. "Feature Article: High Sensitivity Acquisition of GNSS Signals with Secondary Code on FPGAs." IEEE Aerospace and Electronic Systems Magazine, 32, no. 8 (2017): 46-63. doi: 10.1109/MAES.2017.160176. http://ieeexplore.ieee.org/document/8068038/. ABSTRACT: The modern global navigation satellite systems (GNSS) signals, such as the Global Positioning System (GPS) L5 and L1C, and Galileo E5 and E1, have brought several innovations: the introduction of a pilot channel that does not contain any data to allow very long coherent integrations; the introduction of a secondary code to offer better cross-correlations, to facilitate the synchronization with the data, and to help interference mitigation; the introduction of new modulations to reduce the impact of multipath; and the use of higher chipping rates to have better accuracy and interference mitigation.

Liu, Runzi, Min Sheng, King-Shan Lui, et al. "Capacity of Two-Layered Satellite Networks." Wireless Networks, 23, no. 8 (2017): 2651-2669. doi: 10.1007/s11276-016-1311-2. https://doi.org/10.1007/s11276-016-1311-2. ABSTRACT: Satellite networks have great potential in providing global ubiquitous broadband communication. In this paper, we explore the capacity of both single-layered and two-layered satellite networks. Closed-form approximate expressions of network capacity are derived, which provide insights into the impact of different network parameters, such as number of orbits, number of satellites in each orbit, link bandwidth, existence of the seam, the relative position...
between the two layers, etc. We investigate the advantages of two-layered structure by comparing the capacity of single-layered and two-layered networks. The results show that the network capacity of two-layered networks is always no less than the total capacity of the two layers. Moreover, we obtain the network parameter condition under which the network capacity of two-layered networks is strictly larger than the sum capacity of the two layers. The results obtained in this paper can serve as a guideline for the design of efficient multi-layered satellite networks.

https://doi.org/10.1007/s10291-017-0619-4.

ABSTRACT: Real-time satellite clock offset products are frequently utilized in navigation and positioning service fields. The precision of such products is a key issue for their application. The evaluation methods existed for satellite clock offset products are mostly based on post-processed satellite clock offset solutions, which will encounter problems in real-time product evaluation, especially for real-time satellite clock offset products estimated from data with regional stations only. We propose an improved evaluation method for global navigation satellite system (GNSS) satellite clock offset products. In the proposed method, we use all-satellite reference method instead of single-satellite reference method to eliminate the timescale in satellite clock offset products. Moreover, a preprocessing step is suggested to detect gross errors and initial clock bias before evaluating the precision of the satellite clock offsets. We conduct two examples to verify our method, and the experimental results show that the proposed method is more reasonable in assessing the GNSS satellite clock offset precision, and it also provides a reliable approach to analyzing the estimated satellite clock offset in both real-time and post-processed, or globally and regionally.

Bibliography on “semantic web”

Alruqimi, Mohammed and Noura Aknin. "Bridging the Gap between the Social and Semantic Web: Extracting Domain-Specific Ontology from Folksonomy." Journal of King Saud University - Computer and Information Sciences, In Press
https://doi.org/10.1016/j.jksuci.2017.10.005.

ABSTRACT: Folksonomies have become very popular as means to organize large sets of resources shared over the Social Web. The bottom-up nature of folksonomies has proved to be an interesting alternative to the current effort at semantic web ontologies since folksonomies provide a rich terminology generated by large user-communities. Besides, ontologies extracted from folksonomies can represent the intelligence collective of social communities. Such ontologies also represent a core element of a new feature of the Web, the Internet of Things. Many research studies have captured semantics in folksonomies, some of which have developed ontologies from folksonomy. However, the formal specific-domain ontology consisting of domain-dependent relations has not been researched yet. This paper introduces an algorithm for deriving a domain-specific ontology from folksonomy tags. The proposed algorithm starts by collecting a domain-specific terminology; next, discovering a pre-defined set of conceptual relationships among the domain terminologies. The evaluation of the algorithm, using a dataset extracted from BibSonomy, demonstrated that the algorithm could effectively learn domain ontologies consisting of domain concepts linked by meaningful and high accurate relationships. Furthermore, the proposed algorithm can help reduce common issues related to tag ambiguity and synonymous tags.

D’Aniello, Giuseppe, Matteo Gaeta, and Francesco Orciuoli. "An Approach Based on Semantic Stream Reasoning to Support Decision Processes in Smart Cities." Telematics and
ABSTRACT: This paper discusses the use of stream reasoning models and techniques to provide a stream reasoning-based architecture to represent, manage and process data streams produced in the Smart City context, to extract useful knowledge for a better understanding of city phenomena and to support the decision making processes in both the city governance and the citizens. The proposed architecture, taking into account the need for processing heterogeneous data/information across several and different domains, is able to sustain decision-making processes deployed at operational, tactical and strategical levels. Such architecture is distributed and adopts a meet-in-the-middle configuration logic that is really effective and scalable in a complex environment like a (smart) city. The applicability of semantic technologies to implement all the aforementioned features is demonstrated by means of a complex case study realized by using a dataset, related to the city of Aarhus, provided by the CityPulse EU Project.


ABSTRACT: The wide adoption of smart city solutions has proven that information and communication technologies can effectively address many of the challenges in modern cities such as safety, mobility, and sustainability. A contemporary challenge in smart city environments is to improve solution efficiencies by constructing systems of systems where isolated domains are seamlessly combined to render integrated services to stakeholders and end users. This paper proposes a coordination and integration framework that supports day-to-day intelligent transportation operations in smart cities in the context of the Internet of Things. The framework defines three pillars to combine and integrate dispersed cyber-physical components providing means to support coordinated planning among city stakeholders. The paper discusses the operation of these pillars and demonstrates how they can be used to enable the dynamic provisioning of integrated intelligent systems of systems transportation operations.


ABSTRACT: We present a description and analysis of the data access challenge in Siemens Energy. We advocate Ontology Based Data Access (OBDA) as a suitable Semantic Web driven technology to address the challenge. We derive requirements for applying OBDA in Siemens, review existing OBDA systems and discuss their limitations with respect to the Siemens requirements. We then introduce the Optique platform as a suitable OBDA solution for Siemens. The platform is based on a number of novel techniques and components including a deployment module, BootOX for ontology and mapping bootstrapping, a query language STARQL that allows for a uniform querying of both streaming and static data, a highly optimised backend, ExaStream, for processing such data, and a query formulation interface, OptiqueVQS, that allows to formulate STARQL queries without prior knowledge of its formal syntax. Finally, we describe our installation and evaluation of the platform in Siemens.


ABSTRACT: Linked Open Data (LOD) principles are known for a decade now and there are thousands of LOD datasets of variable quality and importance. They often come from academic
research projects, which show how LOD can be published, how it can be useful, etc. However, these projects last only for a few years and when they end, the datasets often cease to be maintained. What is needed is to convince the owner of the original data, e.g. an organization in public administration, to keep on publishing LOD on their own even when the project ends. Therefore, it is noteworthy and admirable, when this happens. In this paper we describe how the Czech Social Security Administration (CSSA) publishes official pension statistics as LOD as part of their day-to-day operation, which was jump-started by an applied research project. The data is modeled using the Simple Knowledge Organization System (SKOS) vocabulary and the RDF Data Cube Vocabulary (DCV). It is published as RDF data dumps, as a SPARQL endpoint and using IRI dereferencing for semantic web technologies power users. For journalists and other users without knowledge of these technologies, the data is also published as CSV files and visualizations generated from the LOD. We show how the data is reused in applications and how it contributes to statistical indicators in combination with other LOD.


ABSTRACT: We are witnessing an increasing usage of location data by a variety of applications. Consequently, information systems are required to deal with large datasets containing raw data to build high level abstractions. Semantic Web technologies offer powerful representation tools for pervasive applications. The convergence of location-based services and Semantic Web standards allows an easier interlinking and annotation of trajectories. However, due to the wide range of requirements on modeling mobile object trajectories, it is important to define a high-level data model for representing trajectory episodes and contextual elements with multiple levels of granularity and different options to represent spatial and temporal extents, as well as to express quantitative and qualitative semantic descriptions. In this article, we focus on modeling mobile object trajectories in the context of Semantic Web. First, we introduce a new version of the Semantic Trajectory Episodes (STEP) ontology to represent generic spatiotemporal episodes. Then, we present FrameSTEP as a new framework for annotating semantic trajectories based on episodes. As a result, we combine our ontology, which can represent spatiotemporal phenomena at different levels of granularity, with annotation algorithms, which allow to create instances of our model. The proposed spatial annotation algorithm explores the Linked Open Data cloud and OpenStreetMap tags to find relevant types of spatial features in order to describe the environment where the trajectory took place. Our framework can guide the development of future expert systems in trajectory analysis. It enables reasoning about knowledge gathered from large trajectory data and linked datasets in order to create several intelligent services."


ABSTRACT: Real-time asset tracking in indoor mass production manufacturing environments can reduce losses associated with pausing a production line to locate an asset. Complemented by monitored contextual information, e.g. machine power usage, it can provide smart information, such as which components have been machined by a worn or damaged tool. Although sensor based Internet of Things (IoT) positioning has been developed, there are still key challenges when benchmarked approaches concentrate on precision, using computationally expensive filtering and iterative statistical or heuristic algorithms, as a trade-off for timeliness and scalability. Precise but high-cost hardware systems and invasive infrastructures of wired devices also pose implementation issues in the Industrial IoT (IIoT). Wireless, self-powered sensors are integrated in this paper, using a novel, communication-economical RSSI/ToF ranging method in a proposed semantic IIoT architecture. Annotated data collection ensures accessibility, scalable knowledge discovery and flexibility to changes in consumer and business requirements. Deployed
at a working indoor industrial facility the system demonstrated comparable RMS ranging accuracy (ToF 6m and RSSI 5.1m with 40m range) to existing systems tested in non-industrial environments and a 12.6–13.8m mean positioning accuracy. 

doi: 10.1016/j.websem.2017.05.001.
https://doi.org/10.1016/j.websem.2017.05.001.

ABSTRACT: The Web of Data, which is one of the dimensions of the Semantic Web (SW), represents a tremendous source of information, which motivates the increasing attention to the formalization and application of machine learning methods for solving tasks such as concept learning, link prediction, inductive instance retrieval in this context. However, the Web of Data is also characterized by various forms of uncertainty, owing to its inherent incompleteness (missing information, uneven data distributions) and noise, which may affect open and distributed architectures. In this paper, we focus on the inductive instance retrieval task regarded as a classification problem. The proposed solution is a framework for learning Terminological Decision Trees from examples described in an ontological knowledge base, to be used for performing instance classifications. For the purpose, suitable pruning strategies and a new prediction procedure are proposed. Furthermore, in order to tackle the class-imbalance distribution problem, the framework is extended to ensembles of Terminological Decision Trees called Terminological Random Forests. The proposed framework has been evaluated, in comparative experiments, with the main state of the art solutions grounded on a similar approach, showing that: (1) the employment of the formalized pruning strategies can improve the model predictiveness; (2) Terminological Random Forests outperform the usage of a single Terminological Decision Tree, particularly when the knowledge base is endowed with a large number of concepts and roles; (3) the framework can be exploited for solving related problems, such as predicting the values of given properties with finite ranges. 

Bibliography on “smart cities”

https://doi.org/10.1016/j.future.2017.08.054.

ABSTRACT: Internet of Things (IoT) has led to the development of smart projects by connecting heterogeneous devices and has accelerated the global growth by providing digital services to the users. The Smart City Project is very complex concept and has many hurdles in its way and many of the hurdles (Digitization services) can easily be solved by IoT. Urban IoT, is designed to support the future vision of smart cities which supported the new hybrid technologies and provide the value added services to the citizens. In this Urban IoT framework the first layer is Data Layer. In Data layer, sensor platform uses the optimized AODV-SPEED protocol (Hybrid Approach), proposed in this paper. Hybrid approach has shown improvement over delay, energy, miss ratio of the packet transmission and packet delivery rate over traditional SPEED protocol which is suitable for IoT applications. This article also identifies the framework, challenges and trends of Smart city IoT and use case for the smart street highlights the importance of proposed structure. Furthermore, Smart City projects are discussed to recognize the importance of IoT in smart cities and its future. 

Cassandras, Christos G. "Automating Mobility in Smart Cities." Annual Reviews in Control, In Press
**ABSTRACT:** Smart Cities are examples of Cyber-Physical Systems whose goals include improvements in transportation, energy distribution, emergency response, and infrastructure maintenance, to name a few. When it comes to mobility, the availability of large amounts of data, ubiquitous wireless connectivity, and the critical need for scalability open the door for new control and optimization methods with the aim of automating all aspects of mobility, from interconnected self-driving vehicles to sharing transportation resources. We address two key questions: can control and optimization methods enable this automation and, if so, how can we quantify its benefits to justify the challenging technological, economic, and social transitions involved? An optimal control framework is presented to show how Connected Automated Vehicles (CAVs) can operate in a dynamic resource contention environment, primarily urban intersections without any traffic lights. We also describe how large amounts of actual traffic data can be harnessed and drive inverse optimization methods to quantify the value of CAVs in terms of eliminating the prevailing Price of Anarchy: the gap between current "selfish" user-centric and optimal "social" system-centric traffic equilibria which are achievable with automated mobility.


**ABSTRACT:** This paper discusses the use of stream reasoning models and techniques to provide a stream reasoning-based architecture to represent, manage and process data streams produced in the Smart City context, to extract useful knowledge for a better understanding of city phenomena and to support the decision making processes in both the city governance and the citizens. The proposed architecture, taking into account the need for processing heterogeneous data/information across several and different domains, is able to sustain decision-making processes deployed at operational, tactical and strategical levels. Such architecture is distributed and adopts a meet-in-the-middle configuration logic that is really effective and scalable in a complex environment like a (smart) city. The applicability of semantic technologies to implement all the aforementioned features is demonstrated by means of a complex case study realized by using a dataset, related to the city of Aarhus, provided by the CityPulse EU Project. 


**ABSTRACT:** The wide adoption of smart city solutions has proven that information and communication technologies can effectively address many of the challenges in modern cities such as safety, mobility, and sustainability. A contemporary challenge in smart city environments is to improve solution efficiencies by constructing systems of systems where isolated domains are seamlessly combined to render integrated services to stakeholders and end users. This paper proposes a coordination and integration framework that supports day-to-day intelligent transportation operations in smart cities in the context of the Internet of Things. The framework defines three pillars to combine and integrate dispersed cyber-physical components providing means to support coordinated planning among city stakeholders. The paper discusses the operation of these pillars and demonstrates how they can be used to enable the dynamic provisioning of integrated intelligent systems of systems transportation operations.


**ABSTRACT:** City planners are currently seeking to transform their cities into Smart Sustainable Cities (SSC) aiming to face the rapid urbanization and its related challenges. This transformation
is often represented by a roadmap. Different approaches were introduced in the literature to assist in developing such a roadmap. However, a thorough analysis of these approaches shows none of them cover holistically all aspect of the SSCs. For instance, some roadmaps neglect analyzing the current challenges of a city. Others falls short in addressing one or more of the SSC six dimensions. None considers checking the city readiness for change. This constitutes a gap in knowledge that this research highlights and addresses through a sound theoretical foundation, specifically, by linking the Theory of Change to the SSC concept and introducing a theoretical logic model for the transformation towards SSCs. The latter is used to propose a coherent, systematic transformation roadmap that captures the cross-cutting readiness of a city along its infrastructures. It aims at assisting city planners, decision makers, and key stakeholders in understanding the essential aspects to be considered during their cities transformation journey. This research also summarizes the results of an undertaken validation process, confirming the components of the proposed roadmap.


ABSTRACT: Cities are becoming smarter and smarter. While the rapid progress in smart city technologies is changing cities and the lifestyle of the people, it creates also huge attack surfaces for potential cyber attacks. The potential vulnerabilities of smart city products and imminent attacks on smart city infrastructure and services will have significant consequences that can cause substantial economic and noneconomic losses, even chaos, to the cities and the people. In this paper we study alternative economic solutions ranging from incentive mechanisms to market-based solutions to motivate governments, smart product vendors, and vulnerability researchers and finders to improve the cybersecurity of smart cities and e-government. These solutions can be integrated into policy instruments in defending smart cities and e-governments against cyber attacks.


ABSTRACT: People are experiencing an evolution of smart cities. Building a smart city will enhance economic competitiveness, social cohesion, and quality of life of its citizens. But smart cities accumulate and process large amount of files, which raises security and privacy concerns at individual and community levels. In the case of file sharing in smart cities, security should be considered to embrace file confidentiality, file integrity, receiver privacy, and sender privacy. In this paper, we propose a privacy-preserving identity-based file sharing (PIFS) scheme to meet these security goals. In PIFS, identity managers for receivers and senders designate them secret keys associated with their identities, respectively. Receivers and senders can register their identities to the group managers without leaking their secret keys. Then a sender can share confidential files with a peer, leaking neither identity of them. However, in case of dispute, the receiver group manager and sender open authority can trace the receiver and the sender, respectively. The security properties of our scheme are formally proven. Analysis shows that our scheme is efficient and practical.


ABSTRACT: Rapid developments in hardware, software, and communication technologies have allowed the emergence of Internet-connected sensory devices that provide observation and data measurement from the physical world. By 2020, it is estimated that the total number of Internet-connected devices being used will be between 25 and 50 billion. As the numbers grow and
technologies become more mature, the volume of data published will increase. Internet-connected devices technology, referred to as Internet of Things (IoT), continues to extend the current Internet by providing connectivity and interaction between the physical and cyber worlds. In addition to increased volume, the IoT generates Big Data characterized by velocity in terms of time and location dependency, with a variety of multiple modalities and varying data quality. Intelligent processing and analysis of this Big Data is the key to developing smart IoT applications. This article assesses the different machine learning methods that deal with the challenges in IoT data by considering smart cities as the main use case. The key contribution of this study is presentation of a taxonomy of machine learning algorithms explaining how different techniques are applied to the data in order to extract higher level information. The potential and challenges of machine learning for IoT data analytics will also be discussed. A use case of applying Support Vector Machine (SVM) on Aarhus Smart City traffic data is presented for a more detailed exploration. “.


ABSTRACT: The central role in development of information society is taken by smart cities and their novel services through the use of modern technology and smart solutions. The key enabler and driver of smart cities is Internet of Things (IoT). In this paper, we have conducted a systematic literature review in order to investigate proposed smart city services driven by IoT. We have formulated the review protocol to define the research question/s, search strategy, selection criteria, study quality assessment, and data extraction strategy. We have defined the following main research question: What are the reported applications of Internet of Things in the development of smart city services? The papers were categorized by the smart city services they proposed or described. We have recognized the following categories: traffic and transport; environment monitoring; accessibility & healthcare; waste management; public lighting; energy management; city infrastructure; and other.


ABSTRACT: As the Internet of Things (IoT) and the Wireless Sensor Network (WSN) are becoming a reality, their interconnections for smart devices are increasing. Smart devices are integrated with sensors and embedded system to offer advanced services, which combined with the IoT to developing a smart city. The Internet of Things shall be able to connect the physical objects through sensors, actuator networks and then control them. It describes the most significant work performed in the area of WSN combined with the IoT for creating a smart city. This paper also focus specifically to an urban IoT system that shows a broad category, are characterized by their specific application domain. Sensing, actuating and controlling for developing an urban area using IOTs are the most advanced communication technologies to support services for smart city and for citizens. This paper also provides a comprehensive survey of smart city concept, technologies, various challenges and architecture.


ABSTRACT: Cities undergoing climate change and rapid urbanization are faced with significant transformational processes that affect the environment and society, challenging them to become more sustainable and resilient. The promotion of nature-based solutions represents an efficient approach to meet sustainability targets in cities and improve the quality of life of citizens. The association of large components of green infrastructure, such as urban parks, with physical activity can counteract the sedentary lifestyle endemic to cities and improve the overall health
and well-being of individuals (Carrus et al., 2013; Scopelliti et al., 2016). By promoting a sustainable means of transport and connecting green spaces within a highly urbanized city, bicycle lanes represent an effective tool for associating physical activity with nature in cities allowing bicycle users to benefit from the positive health effects of nature-based solutions. Our study focuses on the potential of bicycle lanes to improve functional connectivity among green spaces. We administered 820 questionnaires in 34 green spaces (i.e., urban parks) in Bucharest, Romania, to identify the factors influencing the use of bicycle lanes connecting urban parks and to understand which planning criteria for bicycle lanes are considered as the most important by park visitors. We applied binary and ordinal logistic regressions and found that the factors affecting bicycle lane use are illegally parked cars and lack of accessibility to urban parks. The criteria preferred by park visitors for bicycle lane planning are determined by experience level and frequency of bicycle use. To develop a functional and integrated bicycle lane network that can make cities healthier and more sustainable, policy makers are advised to engage in a public participatory process and focus on the needs of bicycle users.

doi: 10.1109/MITP.2017.3680957.
http://dx.doi.org/10.1109/MITP.2017.3680957.
ABSTRACT: Intelligent transportation systems (ITS) are one part of smart cities aimed at efficient public transport, smart parking, enhanced road safety, intelligent traffic management, on-vehicle entertainment, and so on. In ITS, roadside unit (RSU) deployment should be well designed because RSUs act as service providers and gateways to the Internet for vehicular users. The authors’ RSU deployment strategy simultaneously maximizes the communication coverage and reduces the energy consumption of RSUs. They first formulate a multobjective optimization RSU deployment problem and solve it through an evolutionary algorithm. Then they conduct extensive simulations; results demonstrate that the proposed strategy significantly improves both energy efficiency and network connectivity.

doi: 10.1109/MITP.2017.3680952.
http://dx.doi.org/10.1109/MITP.2017.3680952.
ABSTRACT: In the 21st century, the Internet of Things (IoT) will control critical infrastructure such as smart cities and the smart power grid. The author proposes a new approach to achieve exceptional performance, cybersecurity, and privacy in a green Industrial and Tactile IoT, in datacenters, and in big data green cloud computing systems. The combination of a software-defined networking (SDN) control plane, deterministic communications, and lightweight layer-2 encryption offers several benefits. For example, an SDN control plane can embed millions of deterministic virtual networks (DVNs) into layer 2. All congestion, interference, denial-of-service attacks, and cyberattacks targeting a DVN can be removed in layer 2. Unauthorized packets from a cyberattacker can be detected in layer 2 in microseconds. IoT delays can be reduced to the speed-of-light. Finally, exceptional privacy can be achieved using lightweight encryption with long keys. A green Industrial and Tactile IoT can embed millions of DVNs to enable smart cities, and can also pay for itself quickly through reduced capital and energy costs. A field-programmable gate array hardware testbed illustrates the concepts.

ABSTRACT: Due to the pervasive diffusion of personal mobile and IoT devices, many "smart environments" (e.g., smart cities and smart factories) will be, among others, generators of huge amounts of data. To provide value-add services in these environments, data will have to be analysed to extract knowledge. Currently, this is typically achieved through centralised cloud-
based data analytics services. However, according to many studies, this approach may present significant issues from the standpoint of data ownership, and even wireless network capacity. One possibility to cope with these shortcomings is to move data analytics closer to where data is generated. In this paper we tackle this issue by proposing and analysing a distributed learning framework, whereby data analytics are performed at the edge of the network, i.e., on locations very close to where data is generated. Specifically, in our framework, partial data analytics are performed directly on the nodes that generate the data, or on nodes close by (e.g., some of the data generators can take this role on behalf of subsets of other nodes nearby). Then, nodes exchange partial models and refine them accordingly. Our framework is general enough to host different analytics services. In the specific case analysed in the paper we focus on a learning task, considering two distributed learning algorithms. Using an activity recognition and a pattern recognition task, both on reference datasets, we compare the two learning algorithms between each other and with a central cloud solution (i.e., one that has access to the complete datasets). Our results show that using distributed machine learning techniques, it is possible to drastically reduce the network overhead, while obtaining performance comparable to the cloud solution in terms of learning accuracy. The analysis also shows when each distributed learning approach is preferable, based on the specific distribution of the data on the nodes."


**ABSTRACT:** In the smart city construction, massive data collected from various fields need to be outsourced to the cloud for convenience and resource saving. However, integrity and confidentiality of the data in cloud remains a challenge issue due to the loss of data possession. As a solution, some public data auditing schemes have been proposed in last several years. Most recently, Li et al. proposed an efficient public auditing scheme and claimed that it could reduce the cost of clients on generating verification metadata. In this paper, we analyze the security of Li et al.'s scheme and point out two weaknesses in it. We demonstrate that it cannot achieve the confidentiality for outsourced data and it is vulnerable to the proof forgery attack. To address these weaknesses, we propose an improved public auditing scheme, which can not only preserve the data privacy but also resist the proof forgery attack. Security analysis shows that our scheme is provably secure in a robust security model. Performance analysis shows that the proposed scheme can overcome the weaknesses in Li et al.’s scheme at the cost of increasing computation overhead slightly.


**ABSTRACT:** Smart city has been greatly promoted by the adoption of information and communication technology. At the same time, data integrity becomes an urgent necessity in cloud storage scenario. When smart city meets cloud, if the data are damaged or corrupted, it will be a serious security loophole of smart city. Recently, numerous remote data auditing (RDA) protocols have been presented, among which Sookhak et al. put forward a dynamic remote data auditing protocol to deal with this major concern. In this paper, we found that this protocol has inherent security flaws, thus fails to achieve its original goal. Specifically, this protocol is vulnerable to two types of attacks, namely replace attack and replay attack. We show the details that how a malicious server can deceive data owners to believe that the data are maintained well by launching such attacks. Then, we describe an improved RDA protocol with provable security by utilizing algebraic signature to fix those security flaws. We employ the rank-based Merkle Hash Tree to achieve verifiable dynamic data operations for our RDA protocol. We also provide detailed security proof of the proposed RDA protocol.
Bibliography on “social media”

ABSTRACT: Cyber–Physical convergence, the fast expansion of the Internet at its edge, and tighter interactions between human users and their personal mobile devices push toward an Internet where the human user becomes more central than ever, and where their personal devices become their proxies in the cyber world, in addition to acting as a fundamental tool to sense the physical world. The current Internet paradigm, which is infrastructure-centric, is not the right one to cope with such emerging scenario with a wider range of applications. This calls for a radically new Internet paradigm, that we name the Internet of People (IoP), where the humans and their personal devices are not seen merely as end users of applications, but become active elements of the Internet. Note that IoP is not a replacement of the current Internet infrastructure, but it exploits legacy Internet services as (reliable) primitives to achieve end-to-end connectivity on a global scale. In this visionary paper, we first discuss the key features of the IoP paradigm along with the underlying research issues and challenges. Then we present emerging networking and computing paradigms that are anticipating IoP. ".

Gan, Chen, Francis L. F. Lee, and Ying Li. "Social Media use, Political Affect, and Participation among University Students in Urban China." Telematics and Informatics, 34, no. 7 (2017): 936-947
ABSTRACT: Although the role of affects and emotions in political participation has attracted much scholarly attention, few studies have examined whether and how media and communications can be the sources of political affects. This study argues that social media are not only information channels; they can also be effective in communicating feelings and emotions. Social media use may contribute to political affects, which in turn impinge on civic and political participation. In addition, political affects may moderate the effects of social media use on political participation. Based on a survey of university students in Guangzhou, China (N=897), this study finds that, under China’s networked authoritarianism, political communication via social media is related to positive affects toward the government and society, while connection with activists via social media is related to negative affect. Positive and negative affects have different impact on different types of participation. Negative affects strengthen the connection between social media use and participation. The roles of three discrete negative emotions – anger, anxiety and fear – are also explored. ".

https://doi.org/10.1016/j.chb.2017.08.041.
ABSTRACT: The study examines the gendered discourse patterns on a popular online social network, TheMarker Café, using social network analysis. Overall, the findings strengthen previous analyses that report evidence of men’s assertive and dominant discourse style and social role versus women’s more cooperative and supportive discourse style. Men wrote more posts, while women commented on other people’s posts more often. Women’s posts received higher rankings than men’s posts, strengthening the notion that women receive more affirmations on online social networks. The study also examined the interplay between the structure of the TheMarker Café network and gendered discourse patterns. Our findings also confirmed a link between activity network structure and women content popularity. ".

prepared by ITU Library
Library@itu.int
ABSTRACT: Despite a growing body of research about older adults’ use of social networking sites (SNS), scholars have not fully explored how this technology is meeting this group’s interactional and information-seeking needs. How do these older adults view this technology? What are their communication needs and expectations and why are they drawn to it? To address these questions and fill a gap in the literature, this study draws upon in-depth interviews with 46 older adults (average age: 80.4 years) about their perceptions of Facebook, which was the leading SNS at the time of writing. Analysis of interview data revealed six primary reasons for using Facebook (keeping in touch, sharing photos, social surveillance, responding to family member requests, convenient communication, curiosity) and six primary reasons for not using Facebook (privacy, need for media richness, preference for familiarity, triviality of communication, time commitment, frustration with site tools). Emergent findings hold implications for future research and SNS design. 

ABSTRACT: Friends tend to be similar in their academic achievement. In this study, we investigate whether this similarity results from students selecting friends with similar achievement or from friends influencing students’ achievement. In particular, we argue that selection and influence effects should be stronger among girls than among boys. Using friendship network data on 1273 German secondary school students and stochastic actor-oriented models for the co-evolution of networks and behavior, we find selection effects only among girls, which is in line with our theoretical arguments. By contrast, influence effects contribute to achievement similarity among both boys and girls.

ABSTRACT: This work describes the development and implementation of a theoretical support model for the creation of an information system that will allow the dissemination and visualization of scientific and technical information contained in patent documents. This is made possible using the web sites of industrial property official entities, with the support of information resources available through libraries and information services in universities, and their available information resources, which will be crucial for the success of university research centres (URC) in Science, Technology and Medicine (STM). In order to achieve a coherent program of dissemination and enable access to patent information by the URC, social media network tools (such as RSS, Blogs, Wikis, Newsletters) will be used to achieve the proposed objectives, as well as control effectively, in order to constantly improve the system implemented. The goal of this technology watch and competitive intelligence is to stimulate creativity, leading to new product/process development and the consequent improvement of innovation rates in academic research institutions with cost efficiency. Some examples of the use and application of this information resource in different types of industry and a model created for its dissemination will be presented.

ABSTRACT: The increasing use of social media has changed how firms engage their brands with
consumers in recent times. This triggered a need for this research to further our understanding of the influence of social presence on social brand engagement (SBE) and the moderating effects of firm-generated content and consumer commitment. Employing a quantitative survey design, 738 consumers with prior experience in following or engaging with brands on social media were randomly interviewed using an online questionnaire. While social presence positively influence social brand engagement, this relationship is significantly moderated by firm-generated content and the consumers’ level of commitment in engaging with the brand. The findings also indicate that SBE encourages consumers to increase their intention to use the brand as well as engage in electronic word of mouth. Further, this study provides insights into the potential role of SBE and social presence in advancing the broader understanding of brand relationship management, brand engagement and social media research. Our conceptualisation of SBE suggests a need for managers to adopt creative strategies that will arouse consumers’ interest and attention to participate in such interactions.


ABSTRACT: In the public debate, social implications of information technology are mainly seen through the privacy lens. Impact assessments of information technology are also often limited to privacy impact assessments, which are focused on individual rights and well-being, as opposed to the social environment. In this article, I argue that this perspective is too narrow, in terms of understanding the complexity of the relation between information technology and society, as well as in terms of directions for managing this relation. I use systems theory to show that current approaches focus mostly on individual impact of information technology developments rather than their mediating role in society itself. I argue that this should be complemented by an analysis of impact on individuals (psychic systems) via co-construction of the environment (social system). I then take up the question of what the role of information technology in social systems would look like in terms of the social relations of trust and power, and how this can complement privacy in discussions on impacts of information technology.


ABSTRACT: Research on the association between attachment and profile images posted on social networking sites (SNSs) has been limited to Facebook and the results have been inconsistent. The current research further considered the link between attachment theory and impression management theory to improve understanding of the relationship. In addition, two large SNSs in China, Sina Weibo and WeChat, were compared. Results show that compared to securely attached individuals, insecure users of both Sina Weibo and WeChat are more likely to use a dyadic photo of themselves and their romantic partner as their profile image. This effect also emerges when using observer codes for participants’ profile images. However, compared to avoidant WeChat users, avoidant Sina Weibo users are more likely to use a dyadic profile image of themselves with their partner. This type of SNS can moderate the relationship between attachment avoidance and posted profile images, but not the relationship between attachment anxiety and profile images. Finally, explanations of attachment as a predictor, the moderating effect of the type of SNS, limitations of the current study, implications, and areas for future research are discussed."

ABSTRACT: A quantitative behavioural online study examined a set of hazards that correspond with security- and privacy settings of the major global online social network (Facebook). These settings concern access to a user's account and access to the user's shared information (both security) as well as regulation of the user's information-sharing and user's regulation of others' information-sharing in relation to the user (both privacy). We measured 201 non-student UK users' perceptions of risk and other risk dimensions, and precautionary behaviour. First, perceptions of risk and dread were highest and precautionary behaviour was most common for hazards related to users' regulation of information-sharing. Other hazards were perceived as less risky and less precaution was taken against these, even though they can lead to breaches of users' security or privacy. Second, consistent with existing theory, significant predictors of perceived risk were attitude towards sharing information on Facebook, dread, voluntariness, catastrophic potential and Internet experience; and significant predictors of precautionary behaviour were perceived risk, control, voluntariness and Internet experience. Methodological implications emphasise the need for non-aggregated analysis and practical implications emphasise interventions to promote safe online social-network use.

Bibliography on “Spectrum management/Spectrum sharing”


ABSTRACT: This paper presents performance evaluation of multi-user diversity in an underlay spectrum sharing system in which primary and secondary receivers employs multiple antenna over Rayleigh fading channels. For the user selection, we first consider optimal selection scheme which requires the full channel state information (CSI). Then, in order to decrease the computational complexity of user selection and reduce the CSI load we then use a threshold based selection scheme. For each user selection, we present performance evaluation using the following metrics: the average channel capacity and the outage probability where mathematical expressions are derived. The performances of the considered systems are evaluated and compared using the derived mathematical formulas in different cases. We show using numerical analysis and simulations that the threshold based user selection scheme, despite its lower complexity, in some cases achieves the same outage probability performance of user selection employing full CSI in considered cognitive radio (CR) system. To show the accuracy and correctness of the performed analysis, Monte-Carlo simulation results are also provided.


ABSTRACT: The opportunistic spectrum access (OSA) and spectrum sharing (SS) are most commonly used schemes in accessing the underutilized licensed spectrum by a cognitive radio (CR) system. Unlike to SS scheme in which the CR users are permitted to co-exist on the same band being used by licensed users (LUs), in OSA scheme the unlicensed users (UUs) are allowed to access an idle band only. During a CR communication in OSA scheme, in order to remain aware of the re-appearance of LUs on the band of interest, the process of spectrum sensing is of high importance. During sensing, in order to decide the idle/busy status of the licensed band, the proper selection of decision threshold \(\lambda\) is of high importance. \(\lambda\) is mainly selected by using two principles called as constant detection rate (CDR) in which \(\lambda\) is calculated by taking fixed value of probability of detection \(P_d\) and constant false alarm rate (CFAR) in which \(\lambda\) is calculated by taking fixed value of probability of false alarm \(P_f\).
The CDR principle is favorable in protecting the communication of LUs while CFAR principle suits in improving the throughput of CR system. So, blind use of any of the principle lead to a compromise either in the security of LUs or throughput of CR. This paper proposes an approach which based on the mobile/stationary nature of UUt node, and the distance of UUt node from LU, makes selection of an appropriate scheme among the CDR-OSA, CFAR-OSA, and SS, to opportunistically improve the CR-throughput.

Bibliography on “telecommunications policy and law”

ABSTRACT: Abstract Although the protection of personal data is harmonized within the EU by Directive 95/46/EC and will be further harmonized by the General Data Protection Regulation (GDPR) in 2018, there are significant differences in the ways in which EU member states implemented the protection of privacy and personal data in national laws, policies, and practices. This paper presents the main findings of a research project that compares the protection of privacy and personal data in eight EU member states: France, Germany, the UK, Ireland, Romania, Italy, Sweden, and the Netherlands. The comparison focuses on five major themes: awareness and trust, government policies for personal data protection, the applicable laws and regulations, implementation of those laws and regulations, and supervision and enforcement. The comparison of privacy and data protection regimes across the EU shows some remarkable findings, revealing which countries are frontrunners and which countries are lagging behind on specific aspects. For instance, the roles of and interplay between governments, civil rights organizations, and data protections authorities vary from country to country. Furthermore, with regard to privacy and data protection there are differences in the intensity and scope of political debates, information campaigns, media attention, and public debate. New concepts like privacy impact assessments, privacy by design, data breach notifications and big data are on the agenda in some but not in all countries. Significant differences exist in (the levels of) enforcement by the different data protection authorities, due to different legal competencies, available budgets and personnel, policies, and cultural factors. “.

ABSTRACT: The 2013 Snowden revelations ignited a vehement debate on the legitimacy and breadth of intelligence operations that monitor the Internet and telecommunications worldwide. The ongoing invasion of the private sphere of individuals around the world by governments and companies is an issue that is handled inadequately using current technological and organizational measures. This article11This article is based on research carried out at the request of the Science and Technology Option Assessment Panel (STOA) and the Committee for Civil Liberties, Justice and Home Affairs (LIBE) of the European Parliament [11,9]. Its scope is therefore primarily European, however its implications are assumed to be generally applicable. argues that in order to retain a vital and vibrant Internet, its basic infrastructure needs to be strengthened considerably. We propose a number of technical and political options, which would contribute to improving the security of the Internet. It focuses on the debates around end-to-end encryption and anonymization, as well as on policies addressing software and hardware vulnerabilities and weaknesses of the Internet architecture. “.

ABSTRACT: Research interests about access control mechanisms for distributed resources have recently increased. In this scenario, users from different institutions access distributed resources, maintained by different organizations, in order to participate in a common research project, network, or testbed. Several challenges arise from these virtual organizations in order to give different types of access privileges to distinct types of resources, depending on the user profile and considering local and global access policies from partners. This work presents a generic and extensible authentication and authorization framework, named ACROSS, based on policies and attributes for virtual organizations. Our proposal creates a granular and scalable access control, which supports different authentication technologies and is independent of the kind of resource federation. In addition, ACROSS introduces a new concept of attribute generalization for access control, providing a transparent management based on access level computed from user attribute values and weights. Other works with similar goals have limitations restricting their integration with any kind of identity and resource federations. Also, these works present restrictions concerning environment and resource types. Hence, they are specific for usage in grid computing, testbed experimentation, or other distributed-resource environment. Differently from other proposals, ACROSS is a framework for supporting the development of new virtual organizations using any kind of resource sharing. ACROSS provides all A&A functionalities so that creating the virtual organization is no longer a challenge for new applications. We validate ACROSS using it on two scenarios: a real testbed and a testing environment composed of resources simulating a distributed open lab. The results show the feasibility to apply the proposal to different scenarios.


ABSTRACT: This article conjectures that the legacy industry-specific regulation that has governed the telecommunications sector for a long time is in basic conflict with the dynamics and product innovations that characterize the modern information and communications technology (ICT) sector. Reasons for the failure of legacy regulation to promote product innovations are explained and proposals for alternatives, such as deregulation and regulatory reform are discussed. Both regulation and competition policy are more difficult for ICT than for other sectors. Therefore both, regulation and competition policy may need reforms in order to deal with new problems. The most drastic and most realistic alternative to legacy-type regulation remains deregulation and a move to competition policy. Symmetric regulation, smart regulation, quasi-Coasean approaches and subsidies all have some limited applicability to specific situations, but are all associated with complications that have to be resolved, while competition policy is a comprehensive alternative. Last-mile access and gatekeeper access are analyzed as two main areas of legacy regulation, which are in danger of being exported to other ICT areas. Such exports may negatively affect the dynamics of the ICT industry. Rather than being exported, legacy regulations should be reduced in order to enhance product innovations.

http://dx.doi.org/10.1080/01972243.2017.1354107.

ABSTRACT: While macro theorists of informational capitalism have tended to consider intellectual property in a vague and general way, intellectual property researchers have tended to focus on extremely specific issues. What gets missed is an understanding of intellectual property as a system and its relationship with the totality of capitalism. Starting from a cognitive materialist approach, this article offers a systematic account of the recent expansion of intellectual property
rights. Thereafter, it situates the data on the expansion of intellectual property vis-à-vis the transition from industrial to informational capitalism and relates that expansion specifically to informational productive processes. It concludes with a general proposition about the relationship between the changes of stage in capitalism and the institutions of intellectual property.