ICICM 2018
The 8th International Conference on Information
Communication and Management

ICKET 2018
The 7th International Conference on Knowledge and
Education Technology

Edinburgh, Scotland, UK | August 22-24, 2018

Published by
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AGENDA

[August 22, 2018]

- **10:00-17:00**
- **Lessel room @ Ground Floor**
- **St Leonard’s Hall in University of Edinburgh**

**Registration & Materials Collection**

- Give your **Paper ID** to the staff

  >

- Sign your name in the attendance list and check the paper information

  >

- Check your **conference kit**, which includes conference bag, name tag, lunch & dinner coupon, conference program, the receipt of the payment, the USB of paper collection and a pen

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**Tips for Participants**

- Your punctual arrival and active involvement in each session will be highly appreciated.
- The listeners are welcome to register at any working time during the conference.
- Get your presentation PPT or PDF files prepared.
- Regular oral presentation: 15 minutes (including Q&A).
- Laptop (with MS-Office & Adobe Reader), projector & screen, laser pointer will be provided by the conference organizer.
- Please keep all your belongings (laptop and camera etc.) with you in the public places, buses, metro.

**About Dress**

All participants are required to dress formally.
AGENDA

[August 23, 2018]

MORNING

St Leonard’s Hall in University of Edinburgh

St Trinnean Room @ Ground Floor

| Speeches |
|-----------------|--------------------------------------------------|
| **Chaired by Prof. Alexander Balinsky**  |
| **Cardiff University, UK**  |
| **Opening Remarks**  | **Prof. Alexander Balinsky**  |
| **Cardiff University, UK**  |
| 09:00-09:10  | **Keynote Speech**  |
| **Prof. Atour Taghipour**  |
| **University of LeHavre, France**  |
| **Speech Title**: Supply chain coordination  |
| 09:10-09:50  | **Coffee Break & Group Photo**  |
| **@ St Leonards Foyer**  |
| 09:50-10:30  | **Poster Display**  |
| **IC2-073, IC2-1007, IC049, IC042**  |
| 10:30-11:10  | **Plenary Speech**  |
| **Prof. Joachim Griesbaum**  |
| **University of Hildesheim, Germany**  |
| **Speech Title**: Fostering Information Literacy on the Web: Results of a Game-based Learning Scenario  |
| 11:10-11:50  | **Plenary Speech**  |
| **Prof. Alexander Balinsky**  |
| **Cardiff University, UK**  |
| **Speech Title**: Mathematics of Deep Learning  |

**Lunch @ St Leonards Foyer**  
<12:00-13:30>
## AGENDA

### [August 23, 2018]

#### AFTERNOON

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<tr>
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<td>13:30-16:15</td>
<td>St Trinianne Room @ Ground Floor</td>
<td>Session I - Information Communication and Data Services</td>
<td>Assoc. Prof. Huaihai Hui, University of Leeds, UK / Chinese Academy of Sciences</td>
<td>IC010, IC019, IC059, IC2-020, IC043, IC201, IC2-065, IC013, IC038, IC046, IC045</td>
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<td>16:30-19:15</td>
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<td>Session III - Advanced Information Technology and Applications</td>
<td>Prof. Jinhua She, Tokyo University of Technology, Japan</td>
<td>IC047, IC048, IC301, IC024, IC021, IC060, IC2-003, IC2-028, IC2-062, IC039, IC063</td>
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<td>13:30-16:00</td>
<td>Bonnar Room @ Ground floor</td>
<td>Session II - Management Science and Knowledge Engineering</td>
<td>Prof. Atour Taghipour, University of LeHavre, France</td>
<td>IC012, IC101, IC058, IC2-052, IC023, IC2-2003, IC2-060, IC2-026, IC2-027, IC2-002</td>
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<td>16:30-19:30</td>
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<td>Session IV - Education and Learning</td>
<td>Prof. Ying-Chieh Liu, Chang Gung University, Taiwan</td>
<td>IC2-013, IC2-015, IC2-019, IC2-039, IC2-054, IC2-2005, IC2-075, IC2-3003, IC2-1001, IC2-1006, IC2-058, IC2-047</td>
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Dinner @ St Leonards Foyer | <19:30-21:00>
**AGENDA**

Social & Visit Program

[August 24, 2018]

**Loch Ness and the Highlands of Scotland**

7:25 A.M. - 20:00 P.M.

Duration: 12h

**Gathering Place:** The University of Edinburgh, Pollock Halls of Residence, 18 Holyrood Park Road, Edinburgh EH16 5AY

阅历探索

- **Rannoch Moor** - Admire unforgettable views at this epic expanse of untouched wilderness.
- **Glencoe** - Be moved by the sheer beauty and tragic tales of one of Scotland’s most famous landscapes.
- **Fort Augustus** - This wee town of 650 inhabitants is a great spot to watch boats traversing the Caledonian Canal.
- **Loch Ness** - Take a chance to go on an optional boat cruise or wander around this alluring and eerie loch.
- **Pitlochry** - This wonderful little village was one of Queen Victoria’s favourite holiday spots.

**Forth Road Bridge** - The Forth Road Bridge is one of the world’s most significant long span suspension bridges.

**Inclusions**

- Guided Tour with a Fully Trained and Experienced Driver/Guide
- Entry fees to visitor attractions
- Central Edinburgh city centre drop offs

**Exclusions**

- Gratuities
- Lunch
- Hotel drop off service
Please Note

* This tour has an 8 passenger minimum requirement and is subject to cancellation if this minimum is not met.

* The payment of the excursion should be completed no later than August 6th. Onsite excursion registration is unacceptable.
Dear professors and distinguished delegates,

It is our great honor and pleasure to welcome you to the 8th International Conference on Information Communication and Management (ICICM 2018) & the 7th International Conference on Knowledge and Education Technology (ICKET 2018) held in Edinburgh, Scotland, UK during August 22-24, 2018.

The theme of the conference is to proclaim knowledge and share new thoughts among the professionals, industrialists and students from research areas of Information Communication and Management & Knowledge and Education Technology.

The evaluation of all the papers was performed based on the reports from anonymous reviewers, who are qualified in the related field. As a result of their hard work, we are pleased to have accepted 48 presentations from countries and regions including Hong Kong, Japan, Taiwan, Croatia, USA, Kuwait, Brazil, United Kingdom, Thailand, Germany, China, Canada, Ghana, Egypt, France, Philippines, Israel, South Korea and Turkey in this program.

The conference program is highlighted by the Keynote Speaker and Plenary Speakers: Prof. Alexander Balinsky from Cardiff University, UK; Prof. Joachim Griesbaum from University of Hildesheim, Germany; Prof. Atour Taghipour from University of LeHavre, France. Apart from this, the conference is set up with 4 parallel Sessions. Participants will make presentations and discussions over 4 topics, i.e. Information Communication and Data Services; Management Science and Knowledge Engineering; Advanced Information Technology and Applications; Education and Learning. In addition to the core oral presentation, the conference also has poster session, which provides more opportunities for experts and scholars to communicate with each other.

Edinburgh, where the conference is held, is one of Europe’s most beautiful cities, draped across a series of rocky hills overlooking the sea. It’s a town intimately entwined with its landscape, with buildings and monuments perched atop crags and overshadowed by cliffs. From the Old Town’s picturesque jumble of medieval tenements piled high along the Royal Mile, its turreted skyline strung between the black, bull-nosed Castle Rock and the russet palisade of Salisbury Crags, to the New Town’s neat grid of neoclassical respectability, the city offers a constantly changing perspective. To offer an opportunity to discover Edinburgh, the day tour is arranged on August 24.

We believe that by this conference, you can get more opportunity for further communication with researchers and practitioners with the common interest. Your suggestions are warmly welcomed for the further development of the conferences in the future. Wish you have a fruitful and memorable experience in Edinburgh. We look forward to meeting you again next time.

Yours sincerely,

Conference Organizing Committee
VENU

St Leonard’s Hall
in University of Edinburgh

Address: The University of Edinburgh, Pollock Halls of Residence, 18 Holyrood Park Road, Edinburgh EH16 5AY

Mass transport

Road - This building is located within the Pollock Halls of Residence site on the Holyrood Park Road off the A7 near Arthur’s Seat in the south east of Edinburgh.

Train - The Pollock Halls of Residence site is approximately one mile from Edinburgh Waverley Train Station, the city’s main train station.

Tram - The nearest Edinburgh Tram stops are in the city centre, around 1-2 miles away, within reach of the campus using public transport.

Bus - The nearest bus stops to the campus are for the Royal Commonwealth Pool on Dalkeith Road. Lothian Buses provide a number of services which stop within close proximity to Pollock Halls. These include: 2, 3, 5, 7, 8, 14, 29, 30, 31, 33, 37, 47, 49, N3, N30, N31, N37, X29, X31 and X37 The following First Bus services also stop at bus stops on Dalkeith Road: 95A and X95.
VENUE

Floorplan

* Keynote Speeches
* Session I
* Session III

* Session II
* Session IV

Registration Venue
Prof. Alexander Balinsky received his PhD degree in Mathematical Physics from the Landau Institute of Theoretical Physics in 1990 and was Research Fellow in the Department of Mathematics at the Technion-Israel Institute of Technology from 1993 till 1997. He joined Cardiff University in 1997. He is a Professor in the Cardiff School of Mathematics and WIMCS (Wales Institute of Mathematical and Computational Sciences), Chair in Mathematical Physics. His current research interests lie in the areas of spectral theory, stability of matter, image processing and machine learning. He has participated in EU TMR network on Partial Differential Equations and Quantum Mechanics (1996-2001). He was PI on three years grant from United State-Israel Binational Science Foundation (1996-1999), on three years EPSRC Research Grant 2003-2006. He was founding member of Cardiff Communication Research Centre. He had several joint with Hewlett-Packard research projects. He also did consultancy work for Reuters, London on mathematical models for Internet Security. His Impact Case Study "Meeting the Challenges of Data Security: Detecting Unusual Behaviour and Mining Unstructured Data" was featured in the leading article 'The impact of impact' in Times Higher. Out of almost 7,000 case studies that were submitted to REF2014 across all units of assessment from all universities, this case study was one of only 8 highlighted in the article! He was invited by Springer to prepare an article about this Impact Case Study to be publish in a special book "REF 2014 Impact Cases: UK Success Stories in Industrial Mathematics". The book was published in February 2015. Currently he is PI on joint with Hewlett-Packard and Dyfed Powys Police on “Crime Analysis and Predictive Policing”.

Title--- Mathematics of Deep Learning

Abstract--- Deep Learning is another name for a set of algorithms that use a neural network as an architecture. In the past few years, Deep Learning has generated much excitement due to many breakthrough results in speech recognition, computer vision and text processing. This recent success has been due to new mathematical techniques, the availability of inexpensive, parallel hardware (GPUs, computer clusters) and massive amounts of data. This powerful way of processing data can be used to address an ever-growing number of problems, and its impact on science and society is increasing exponentially. In this talk we present mathematical foundations of Deep Learning, relations with statistical physics and applications to text mining and features extraction.
Prof. Joachim Griesbaum
University of Hildesheim, Germany

Prof. Dr. Joachim Griesbaum was born in Lahr/Schwarzwald, Germany, in 1971. He obtained his doctoral degree in Information Science in 2006 from the University of Konstanz in Germany. In 2008 he joined the University of Hildesheim. He has more than 60 papers published in international journals and conferences. His research interests include Social Media, E-Learning, Knowledge Management and Online Marketing.

Title--- Fostering Information Literacy on the Web: Results of a Game-based Learning Scenario

Abstract--- This paper discusses complexities of the Internet as an information space and outlines information behavior patterns of users that are often inadequate. On this basis, game-based approaches to foster information literacy are briefly discussed. This provides the wider frame for an exploratory case study in which the effectiveness and acceptance of game-based elements are investigated.
Prof. Atour Taghipour  
University of LeHavre, France

Atour TAGHIPOUR is an Associate professor and the head of an international management master program at the University of Le Havre in France. He holds a PhD in Industrial Engineering from the Polytechnic School of Montreal in Canada. He received two masters’ degrees, one in Management, Logistics & Strategy and other in Industrial Engineering. He has more than ten years of experiences as a manager in automobile industries. He has published two books and many research papers in international journals. His areas of research are supply chain and operations management.

Title--- Supply Chain Coordination
Abstract--- Regardless of the sector, the supply chains are considered the networks of business units characterized by distinct, yet mutually interdependent, planning decision domains. The main question that arises in the management of these networks is the coordination of supply chain members' operations. But, difficulty arises when the decision domains are considered independent units. So, the problem arises when there is the question of the exchange of information between independent units.

In practice, supply chain operations are generally coordinated hierarchically, through aggregated planning, which requires a high degree of information exchanges or through the relatively inefficient upstream planning approach, in which operations are planned and the derived dependent demand is sent to suppliers. The High degree of information exchanges leads to difficulties when independent members do not want to share information, such as cost, profit margin, inventory level or capacity utilization. In order to address these difficulties, decentralized approaches of coordination of operations planning decisions based on some minimal information sharing have been proposed in many academic disciplines. During this speech we focus on these approaches, by studying different aspect of supply chains.
August 23th, 2018

Session I

[Information Communication and Data Services]

⏲️ 13:30-16:15

📍 St Trinnean Room @ Ground Floor

Chaired by Assoc. Prof. Huaihai Hui

University of Leeds, UK /Chinese Academy of Sciences

11 presentations—

IC010, IC019, IC059, IC2-020, IC043, IC201, IC2-065, IC013, IC038, IC046, IC045

*Note:

➤ Please arrive 30 minutes ahead of the sessions to prepare and test your PowerPoint.

➤ Certificate of Presentation will be awarded to each presenter by the session chair when the session is over.

➤ One Best Presentation will be selected from each parallel session and the author of best presentation will be announced and awarded when the session is over.
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<tr>
<td>IC010</td>
<td>Zhao-ge LIU, Xiang-yang Li</td>
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<tr>
<td>13:30-13:45</td>
<td>School of Management, Harbin Institute of Technology, China</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>In community safety service, big data governance is the prime mode to achieve community safety big data sharing and service value increasing. Although existing researches have preliminarily established the general big data governance framework, identification and governance of specific sharing problems lack comprehensive and systematic scenario description. Applying software engineering method, this paper proposes a kind of scenario expression model of big data governance in community safety service. Considering the common features of big data governance scenarios, construct the meta-scenario model of big data governance in community safety services. Considering the scenario expression difference under different levels, scales and particle sizes, construct the full view scenario model of big data governance in community safety services by meta-models nesting to complete the scenario expression under different applying situation. Finally, a use case is proposed to verify the rationality and effectiveness of the scenario expression models.</td>
</tr>
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| IC019    | Stable Structure Analysis for Urban Transport Networks                      |
| 13:45-14:00 | Yuanyuan Chai, Yilong Zhu, Zizhou Zhang                                   |
| ABSTRACT | In order to analyze the structural stability of transportation networks, a dynamic structure optimization method combining with betweenness and network entropy, named Fast Betweenness Entropy Maximization (Fast BEM), is proposed in this paper, which uses iterative calculation process to enhance stability of network structure, and finally reaches a stable structure of transportation networks. The Fast BEM improves the speed of convergence on the basis of the existing open shortest path first algorithm, despite an increase in the work done in each optimization iteration. But the number of optimized iterations and the running time are reduced in general. Consequently, the stable structure can be found more quickly. The experiments show that by using the Fast BEM, the convergence speed tends to be stable to reduce volatility, and the effectiveness of this algorithm is verified. |

| IC059    | Innovation Research in City Public Management Based on a Data Resource Sharing Exchange Platform |
| 14:00-14:15 | Huaihai Hui, Des Mclemon, Ali Zaid                                       |
| ABSTRACT | School of Economics and Management, Chinese Academy of Sciences, China   |
In order to solve the common needs of shared basic data resources in different industries, different departments and different regions in a city, this paper has designed a Data Resource Sharing and Exchange Platform (DRSEP) to solve the demand for comprehensive data of City Public Management (CPM). Firstly, we analyze the basic functional requirements of the platform. Secondly, we study the characteristics of the DRSEP from three aspects: data type, data volume and data transmission/application methods. Thirdly, we provide the overall technical architecture of the DRSEP, which includes: the data resource layer, the resource site layer, the resource integration layer, the resource service layer and the resource application layer. In particular, we devise a Data Organization System (DOS) based on a Data Resource Directory (DRD), a Public Basic Database (PBcDB) and a Public Business Database (PBuDB). The DRD is the metadata standard and resource directory of the platform. Through this directory, the authority, accuracy and unity of the data resources can be ensured. The PBcDB consists of four types of databases: a population database, a corporation database, a macroeconomic database and a geospatial database. The PBuDB includes a video database, an environmental safety supervision database, a building database, a government affairs and emergency database, a credit database and a comprehensive human resources database. Finally, the DRSEP is deployed, tested, applied and evaluated in a city with a population of 2.19 million in western China. Moreover, the test evaluation results show that the platform exhibits an outstanding performance in the integration technology of multi-source heterogeneous data and the reliable transmission technology of massive data.

Database and information sharing online platform to bridge higher education institutions, graduates and enterprises. The Erasmus+ Voyage international cooperation project

Manuel F. M. Costa, A. Mário Almeida, L. Cunha, S. Teixeira and C. Moura

Universidade do Minho, Portugal

ABSTRACT

In order to increase the employability prospects of higher education graduates a close match between the training the university provides to their students and the requirements of the industry must be achieved. Understanding and effectively knowing the needs and requirements of enterprises and the industry in terms of employee's knowledge and competencies is crucial to higher education. On the other hand a major effort must to be constantly pursued in order to advertise and illustrate the level of quality and competence of our engineering graduates. Bridges must be established and strengthened to allow the university to understand the needs of the industry and the requirements of society while making clear what major contributions the university gives to the development of our societies and humankind. In this line to sought international cooperation projects were developed involving several universities from EU countries and abroad lead by the Almalaurea consortium promoted by the University of Bologna. In this communication we will present the ERASMUS+ project "VOYAGE" of cooperation, in these lines, between EU higher education institutions and Vietnamese universities with the involvement and support.
SESSIONS

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<td>IC043 14:30-14:45</td>
<td>First Aid Literacy Mobile Application Development</td>
<td>Pattaraporn Khuwuthyakorn, Benjamas Suksatit, Orawit Thinnukool</td>
<td>First aid treatment in medical emergencies is very important especially in serious injuries, which can increase the survival of emergent patients and reduce risk of permanent disability. The primary first aid procedures provide practical guidelines of the initial care to a person suffering an injury or illness by following the standard method of first aid before secondary care. Nowadays, mobile phone could be a useful tool to provide essential information and a quick reference in first aid. The research questions are how appropriate design of an application should be to suit a first aid leaning tool? What necessary functions for someone to deal with any unexpected situations or accidents should be? The purpose of this study is to develop the First Aid Literacy Mobile Application (FALMA) by using the rapid prototyping methodology together with the Ionic framework. The application has been designed by considering necessary functions such as location service and first aid treatment information. The result of the development and testing are discussed.</td>
</tr>
<tr>
<td>IC201 14:45-15:00</td>
<td>Quality of Services Provided for Users in Fifth Generation Wireless Networks</td>
<td>Ekaterina Dormidontova, Mikhail Komarov</td>
<td>Wireless Networks are being developed rapidly during the last two decades. Since that time, science and technologies have been modernized from slow GPRS networks to the networks of fourth generation, which are allowed to transfer the data wirelessly at the high speed and relatively low latency. However, the technological progress has not been stopped after 4G-networks became widely spread. By now, many scientists talk about principally new technology of wireless data transfer — networks of fifth generation. At the same time it is highly important to assess how the criteria of quality for the modern 5G-networks can be formed, based on the experience of usage 4G-networks. In the paper, it is firstly suggested to assess the quality of the 4G networks. Then, several new factors are introduced for future</td>
</tr>
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| IC2-065  | The Impact of Systems Analysis and Design Performance on Learning Advanced Systems Development Methodology  
Kelvin C. K. Wong and Fion S. L. Lee  
Hong Kong Baptist University, Hong Kong  
Abstract  
Systems analysis and design is a complex and challenging process. In order to prepare information systems (IS) major students for employment, the Association for Computing Machinery (ACM) and the Association for Information Systems (AIS) developed the IS 2010 Curriculum Guidelines for Undergraduate Programme in Information Systems which identify the systems analysis and design course as one of the seven core courses in an IS undergraduate curriculum. This study aims to investigate the impact of student performance in Systems Analysis and Design course on the learning of an advanced information systems development methodology course. In addition to a thorough discussion on the findings, limitations of the study and further research were identified. |
| IC013   | How does Health Website Influence Patient Compliance: An Empirical Study  
Xinyi Lu, Runtong Zhang, Wen Wu, Xiaopu Shang  
School of Economics and Management, Beijing Jiaotong University, Beijing Logistics Informatics Research Base, China  
ABSTRACT  
This study discusses health website from views of quality and reputation, and explores their effects on patient compliance. We built a research model including two independent variables, two mediators and one dependent variable as well as six hypotheses was built. An online survey involving 446 Chinese participants was conducted to collect data, and 401(89.6%) were valid. According to results of CFA, the fit between questionnaire data and research model was good, and we deleted five items with low loadings. From the perspective of quality and reputation, health website has positively indirect effect on patient compliance through the mediation of patients’ perceived quality of Internet health information and their satisfaction with Internet health information. Based on our findings, we are inspired that health websites could improve the perceived quality of their information, like increasing their relevance with topics. Physicians could pay more attention to health information from health websites with relatively high reputation as well as online communication with patients through these websites. |
| IC038   | An Empirical Study on the Relationship between the Satisfaction of Internet Health  
|
| SESSIONS |
|------------------|--------------------------------------------------|
| **Information and Patient Compliance** |
| ——Based on Trust Perspective |
| Rui Liu, Runrui Zhang, Xinyi Lu |
| School of Economics and Management, Beijing Jiaotong University, China |
| **ABSTRACT** |
| With the increasing demands of health information and the development of the Internet, the Internet has evolved into an important source of social health information. However, the uneven quality of information may seriously affect the behaviors and decision-making related to the patient’s health. The patients’ trust in a doctor may be altered by the health information obtained from the Internet, which in return will affect their compliance to medical diagnoses and treatments. Therefore, it is of great significance to probe into the relationship between the satisfaction of health information on the internet and the compliance of patients from the perspective of trust. The results show that the satisfaction of internet health information has significant influences on patients’ cognition-based trust; patients’ affect-based trust in doctors has a positive impact on patient compliance; while patients’ cognition-based trust has a positive impact on affect-based trust. In the end, combined with the results of the empirical study, the research further discusses the improvement of the relationship between doctors and patients. |
| **IC046** |
| **15:45-16:00** |
| Research on the Word-of-Mouth Tree in Online Community Based on the Study of Information on Diffusion Cascades |
| Xiaoxi Du |
| School of E-commerce and Logistics Management, Henan University of Economics and Law |
| China, China |
| **ABSTRACT** |
| With the popularization and development of online communities, word-of-mouth information dissemination has gradually emerged. Based on information diffusion cascade theory, and taking the structure characteristics of word-of-mouth tree in the network community as the sample, the main structure characteristic indexand propagation path division method are proposed. And then we develop and design an experimental study on a negative word-of-mouth tree in Sina community, to test its effectiveness and rationality. The research results show that propagation size and arrival rate, propagation depth and breadth, and node propagation rate and cascading rate are three main indexes which can describe its structural characteristics at the global and individual level. The propagation path focuses on the description of its structural characteristics at the local level, which can be divided into four types: sporadic, receptive, diffused and widely used. |
| **IC045** |
| **16:00-16:15** |
| The Role of the Size Maze and Learning Parameters in the Prefrontal Cortex Modeling |
Abstract

Learning pathways in spatial navigation has been a subject of the literature in the last decade, one must bear about decision making and situation management. Column models were characterized few years ago and current implementations of the prefrontal brain cortex (PFC) to simulate the rat behavior in a 3x3 maze given a Goal-Driven task. In this work, the simulation was adapted to study learning variables and goal task processing. The model was adapted to study different situations such a (1) 'μ' parameter value (for learning enhancement or degeneration) and different limits between a half and the entire amplitude of the threshold parameter, and (2) size of the maze (3x3, 3x4, 3x6 and 3x8 in tabulated simulations) related with the initial position of the rat and the goal condition (reward position). The initially position did not increment the average number of step to learn the way, but when vertical size was increased to more than 4/3 the horizontal maze size, the number of steps was increased to learn the optimal pathway to reach to reward. Then, the larger size maze the more difficult to the PFC model to learn the optimal pathway and this was discussed in the current view of the entorhinal cortex and how this model process a different number of goals for a Goal-Driven task, especially considering modelling of acquisition and learning variables in the minicolumn model. A short discussion is extended about studies of situation management.
SESSIONS

August 23th, 2018

Session II
[Management Science and Knowledge Engineering]

⏰ 13:30-16:00
📍 Bonnar Room @ Ground floor

Chaired by Prof. Atour Taghipour
University of LeHavre, France

10 presentations—
IC012, IC101, IC058, IC2-052, IC023, IC2-2003, IC2-060, IC2-026, IC2-027, IC2-002

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- One Best Presentation will be selected from each parallel session and the author of best presentation will be announced and awarded when the session is over.
### SESSIONS

| IC012 | 13:30-13:45 | The Effect of Entrepreneurial Market Orientation on Firm Performance: The Case of SMEs in Egypt  
Heba M. Elshourbagy, **Hesham O. Dinana**  
American University in Cairo, EGYPT  
**ABSTRACT**  
This research aims to investigate the influence of Entrepreneurial Market Orientation (EMO) and its component items on SMEs performance in Egypt. It also aims to investigate factors that might affect EMO-performance relationship. EMO conceptual model has been developed, and twelve hypotheses have been proposed in order to test the model and the study variables. The study used mixed research design. Qualitative data obtained from 25 face-to-face interviews was analyzed using content and frequency analysis. Quantitative data collected from 403 surveys was analyzed with IBM© SPSS© Statistics Version 20 using bivariate correlation and linear regression analysis. Results confirmed the validity of the proposed model and that EMO and its component items have significant positive impact on SMEs performance. Study results did not support the moderating effect of external environment and firm characteristics within EMO-performance relationship. However, data revealed that external environment have direct effect on performance, and that service firms are more likely to succeed in the Egyptian market. The findings contribute to EMO literature, as up to now no significant amount of research has been conducted related to this field of study, and few in the Egyptian context. Findings will help academics to make proper directions for future researches in different settings and contexts regarding EMO. The research also contributes to a better knowledge of factors affecting performance of Egyptian SMEs. Findings are valuable to entrepreneurs and SMEs stakeholders to more consider entrepreneurial market orientation strategies in order to enhance firms’ performance. |
|---|---|---|
| IC101 | 13:45-14:00 | DIFFICULTIES AND SOLUTION PROPOSALS RELEVANT IN THE APPLICATION OF ISO 9001:2015 QUALITY MANAGEMENT SYSTEM STANDARDS TO SMALL AND MEDIUM Sized (SME) COMPANIES  
Asst. Prof. Dr. Hasan CICEK  
Faculty Of Engineering and Natural Sciences, Industrial Engineering Dept., Üsküdar, University / Istanbul-TURKEY  
**ABSTRACT**  
Implementing ISO 9001:2015 Quality Management System (QMS) for small and medium size companies is so crucial from competition point of view. The feedback which comes from customers and suppliers helps improvement in the firms and giving also a confidence. |
### SESSIONS

<table>
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<th>IC058</th>
<th>14:00-14:15</th>
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| **By assessing the suppliers in accordance with ISO 9001:2015 QMS shows the usefulness of the system. In addition as this new version of ISO standard makes the risk analysis mandatory for those companies.**

In this study we have tried to explain the documentation requirements for the companies and difficulties they may face. Furthermore we have recommended proposals for solutions that could be of help to those companies. |

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<th>IC058</th>
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| **Contradictions and Limitations in the Right of Access to Information in the Municipal Archives of Portugal and Spain**

**Paulo Jorge dos Mártires Batista**

CIDEHUS.UE - Centro Interdisciplinar de História, Culturas e Sociedades da Universidade de Évora

**ABSTRACT**

The individual’s building process have a great importance in the context of information management in the municipalities of Portugal and Spain, since they allow access to all the existing information about any construction of this nature, from its initial inception project to, in the case of such, their demolition. This importance results from being the most produced records by the respective services and sought by the users of the archives, mainly due to the probative, fiscal, administrative and legal value that it possess. In spite of the vast legislation produced in Portugal since 1976, which regulates the dissemination and access to this information by citizens, in practice there are deep contradictions and limitations in these matters according to the municipalities considered. In Spain this reality also raises many questions due to the lack of clarity of the law in force and its restrictions which threatens the right of access to the archives. Thus, it is a priority to standardize the access of the citizens to the archives, regardless of the municipalities, in absolute compliance with what is established in the legal texts. The foregoing also results in the primary role of archivists (information managers) and in the awareness of the relevance of the archives and the information under the responsibilities of the services as a guarantor of human and democratic rights, alongside with the right of protection of each individual’s honour and privacy. |

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<th>IC2-052</th>
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| **Using 6 Sigma to Improve Outcomes of Higher Education Institutes**

**Fuad M. Alkoot**

PAAET - Higher Institute of Telecommunication & Navigation, Kuwait

**Abstract**

Higher education institutes face many challenges that require robust and scientific solutions. Six-sigma process improvement methodology is an example of a scientific method that we aim to use to improve the outcome of an educational institute. Six sigma is implemented successfully in the services and manufacturing sectors but rarely in education. |
**SESSIONS**

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<th>Time</th>
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<th>Authors/Institutions</th>
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<tbody>
<tr>
<td>14:30-14:45</td>
<td>Knowledge Sharing of Virtual Teams: The Mediating Effect of Trust on Relationship Communication</td>
<td>David Kauffmann, Golan Carmi  &lt;br&gt; Jerusalem College of Technology Havaad Haleumi, ISRAEL</td>
</tr>
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**ABSTRACT**

This study examines the relationship between relationship communication and knowledge sharing by exploring the mediating effect of interpersonal trust in a virtual team environment. A multiple-mediation model was developed to examine this relationship, where cognitive trust and affective trust are defined as mediation variables between relationship communication and knowledge sharing. The main results of this study demonstrated significant positive correlations between relationship communication, trust, and knowledge sharing. Furthermore, this study identified interpersonal trust as playing an important role in mediating the relationship between task communication and knowledge sharing. However, only the rational aspect of trust has an impact, unlike that of the emotional aspect. Thus, only cognitive trust was found to be a mediator for knowledge sharing. This research model can help virtual teams resolve some of the emerging organizational challenges by increasing knowledge sharing.

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<tr>
<td>14:45-15:00</td>
<td>Academic Knowledge, Technology, Indigenous Worldviews and Globalization: Discourse Integration for Sustainable Development</td>
<td>Seth A. Agbo  &lt;br&gt; Lakehead University, Canada</td>
</tr>
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</table>

**Abstract**

In this theoretical paper, the intellectual traditions of the academy that emphasize scholastic detachment and objectivity are on the attack as representing thought that has invented Indigenous worldviews as the ‘other’ because they provide a context with meaning and values that are considered unscholarly pursuits. The thesis of the paper is that Indigenous knowledge is a crucial component in the selection of the criteria for sustainable development and the formulation of corresponding goals for sustainability in a global economy. This paper explores how Indigenous epistemologies and cultural ideas can be
grafted onto academic knowledge and technology in a way that considers Indigenous epistemology as crucial in the generation of knowledge for sustainable development. The paper attempts to demonstrate how to integrate technology and Indigenous knowledge by creating a model of discourse integration that goes beyond Eurocentric positivistic traditions and culture and encourages a cross-fertilization of insights, practices and worldviews of Indigenous knowledge and cultures with technology. The paper concludes that Indigenous knowledge and the traditions of the academy can be mediated and defined in terms of a system of culturally structured and shared values, beliefs and symbols about knowledge in a collaborative knowledge generation model that emphasizes meaning and mutual exercise of control and power and placing Indigenous knowledge in a conspicuous place in academic knowledge/technology traditions.

**IC2-060**  
15:00-15:15  
**Categorized Question Template Generation for Ontology-based Assessment Questions**  
**Noor H. Ibrahim Teo**, and Mike S. Joy  
University of Warwick, United Kingdom  

**Abstract**  
This paper discusses how to generate question templates by interpreting existing assessment questions from textbooks and validating concepts from existing ontologies. Previous work shows that most of the concepts that exist in the ontologies can be used as keywords to generate useful assessment questions. In this paper, we consider questions generated from a variety of ontologies, and question taxonomies, which include definitions, concept completions, and comparisons. Evaluation of novel techniques for question generation provides insights on how to extract a pattern from assessment questions in a textbook in order to create question templates that can be used with concepts presented in ontologies to generate useful questions. This paper discusses the method used and the experimental results.

**IC2-026**  
15:15-15:30  
**A Study on the Interdisciplinary Teaching Process of the Information Technology Applications on Cultural and Creative Product Design**  
**Lu Li-Shu**, Wu Pei-Fen  
National Yunlin University of Science and Technology, Taiwan  

**Abstract**  
In recent years, the trend of global education has been chiefly directed onto interdisciplinary talent cultivation, as well as encouraging teachers and students to enter the community field. The relationship between university education and the local community are being strengthened in order to drive more social innovation. The lifestyle in the rural areas are undergoing gradual changes and evolving, and there is strong hope to bring the vitality to the old-aged rural life where community withered. Therefore, this study takes the technical principles of the IT sensing application and the guidance of the interdisciplinary teaching, and carries out the design of the commodity development of
rural culture. The overall teaching and research process is based on the view of the researcher as the educator, and through the participatory observation method and action research method to analyzed and introspected. The practical design outcome is the "Huben Five-sense Image Poetry Collection". The development process is mainly guided by the teaching modules of designing and IT, and the cooperative learning. In this way, micro technology is applied to the design, and the image poetry collection is produced, developed and implemented accordingly. The whole process has gone through field and domain dialogues, teaching interaction, case analysis, cooperative communication, field assessment and calibration, and finally the proposal is submitted. Analytical result on teaching process of interdisciplinary collaboration design in this study aims to serve as reference for future interdisciplinary instruction or related research.

### Use of an Interdisciplinary Teaching to Innovation Model for an Agricultural Marketing

**Hui-Jiun Hu, Li-Shu Lu**  
National Chiayi University, Taiwan

**Abstract**

This course through the collaboration of interdisciplinary teachers and experts. Professional techniques from various fields of knowledge were combined to stimulate innovative thinking among the students. The teaching method involved the “double diamond” design process model: Students explored (discover, 1D) the needs of the people, environment, and other items in agricultural areas; defined (define, 2D) problems that could be solved; participated in brainstorming activities to develop (develop, 3D) problem-solving directions and tools; and implemented their ideas and presented (deliver, 4D) their projects. Furthermore, the students were taught to utilize the convenient information and communication technologies (ICTs) that were available during the development of their projects. Not only can it reduce development costs, but it can also speed up development. We found the high-quality agricultural products produced by small farmers were found to have lacked brand and marketing channels; thus, they were unable to attract young people willing into the countryside. Finally, we proposed an innovative model of agricultural marketing: "Customized QR Code Video Marketing linking Mobile Payment Technology". Through the integration of PayPal’s mobile payment technology with the customized QR code design and the marketing video upload system. Small farmers can able to easily engage in direct sales, improve the brand identity of their high-quality nontoxic products, and more flexibility reduces cost.

### The Effectiveness of Using Synchronous Collaborative Tools in the Peer Review Process

**Tsz Yin Pang**  
City University of Hong Kong, Hong Kong

**Abstract**
Technological advancement has brought many digital tools into classrooms, and also made many teaching and learning activities possible. One of the well-researched digital tools concerns the use of Google Docs, a free online writing platform, in that it allows students to simultaneously write with their peers, which in turn creates a collaboratively written product. In fact, there are no lacks of studies proving the benefits brought by synchronous collaborative writing activities, including enhanced writing motivation, improved writing skills, as well as increased productivity and quality of writing. However, the possibility of doing synchronous collaborative peer review (with the use of Google Docs) in classrooms has not been questioned by any researchers, despite it is already known that peer review plays a vital role in improving students’ writing quality.

As a result, this study serves to fill this loophole by shedding light on the beneficial nature of synchronous collaborative peer review. To this end, this study examined how synchronous collaborative tools such as Google Docs facilitate the peer review process, and how effective synchronous collaborative peer review is in helping student writers revise their writing. Questionnaire and interview were used as instruments to collect quantitative and qualitative data from both student reviewers and writers. The results showed that from the students’ perspective, synchronous collaborative tools such as Google Docs facilitated the peer review process to a great extent, and allowed writers to get more referential feedback from the reviewers than the traditional form of peer review. In view of these results, this study proposes guidelines for educators to extend the use of synchronous collaborative tools to the peer review process.
SESSIONS

August 23th, 2018

Session III

[Advanced Information Technology and Applications]

⏰ 16:30-19:15

📍 St Trinnean Room @ Ground Floor

Chaired by Prof. Jinhua She
Tokyo University of Technology, Japan

11 presentations—
ICO47, ICO48, IC301, IC024, IC021, IC060, IC2-003, IC2-028, IC2-062, IC039, IC063

*Note:

➢ Please arrive 30 minutes ahead of the sessions to prepare and test your PowerPoint.

➢ Certificate of Presentation will be awarded to each presenter by the session chair when the session is over.

➢ One Best Presentation will be selected from each parallel session and the author of best presentation will be announced and awarded when the session is over.
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<th>ABSTRACT</th>
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| **IC047** 16:30-16:45 | Efficient Digital Signage Multiplexing Based on User Grouping of NOMA System  
**Ji-Hwan Kim**, Min-Jae Paek, Won-Seok Lee, Hyoung-Kyu Song  
Sejong University, Ut Communication Research Institute, Korea  
**ABSTRACT**  
This paper proposes non-orthogonal multiple access (NOMA) using user grouping with coordinated multi point (CoMP). Proposed method outperforms conventional CoMP NOMA method due to user grouping scheme. Basic NOMA scheme aims to enhance multi user capacity and CoMP NOMA scheme aims to improve overall bit error rate (BER) performance. However, serious degradation on signal to noise ratio (SNR) performance hasn’t been solved since complex successive interference cancellation (SIC) is accumulated. Therefore, we propose user grouping scheme to efficiently bind signage entities. By separating signage entities into independent groups, SNR performance is increased compared to the conventional CoMP NOMA. It is shown that the proposed scheme outperforms conventional scheme from the simulation results |
| **IC048** 16:45-17:00 | Inter Cell Interference Mitigation Using Adaptive CoMP with SPC in Digital Signage Network  
**Min-Jae Paek**, Ji-Hwan Kim, Won-Seok Lee, Hyoung-Kyu Song  
Sejong University, Ut Communication Research Institute, Korea  
**ABSTRACT**  
This paper proposes the method mitigating the interference from digital signage (DS) of adjacent cell to mobile terminal (MT) located on the cell edge. When MT is located on the cell edge, serving cell assists cooperative communication with the DS of neighboring cell to improve the quality of service (QoS) of MT user. Proposed scheme uses adaptive coordinated multi point (CoMP) and pre-coding scheme for reliability enhancement of MT in digital signage network to mitigate the interference. Spatial phase coding (SPC) is the effective way to solve this problem by modifying the channel coefficient. The simulation results show that the proposed scheme is more powerful than conventional scheme |
| **IC301** 17:00-17:15 | MU-MIMO Relaying Scheme for Improvement Reliability in Wireless Communication System  
**Won-Chang Kim**, Young-Jae Kim, Young-Hwan You, Hyoung-Kyu Song  
Sejong University, Ut Communication Research Institute, Korea  
**ABSTRACT**  
This paper proposes multi user multiple input multiple output (MU-MIMO) relaying scheme for expanding communication coverage and improving reliability in wireless communication system. The performance of the conventional single user multiple input multiple output (SU-MIMO) relaying scheme is reduced due to the error propagation in the relay node. In addition, the signal can be transmitted to only one user. On the other hand, the proposed |
scheme can improve the performance of the system by combining the signal transmitted through the direct link between the source and destination and signal transmitted from the relay node. Additionally, the proposed scheme can transmit signals to multiple users at the same time by applying the MU-MIMO scheme at the relay node. The simulation results show that the proposed scheme has better bit error rate (BER) performance than the conventional system.

Personalized Recommendation System for Advanced Learning Management Systems

Thoufeeq Ahmed Syed, Smitha Sunil Kumaran Nair

Middle East College, Muscat, Oman

Abstract

The information on the web is ever increasing and it is becoming difficult for students to find appropriate information or relevant learning material to satisfy their needs. Machine Learning (ML) and Data Mining (DM) have emerged in a variety of application areas including in Learning Management Systems (LMS). In the learning field, the main focus is on the learning style and learning behaviour of the learners. Identifying learning style and learning behaviour helps in the development of learning management systems. Effective Personalized Learning Recommendation Systems will not only reduce this burden of information overload by recommending the relevant learning material of their interest to the students, but also provide them with the “right” information at the “right” time and in the “right” way. Educational Data Mining is an emerging interdisciplinary research area of DM that deals with the development of methods to explore data originating in an educational context. In this paper, we present a novel technique for finding the relevant references, i.e., Most Recently Referred (MRR) and All Time Referred (ATR) titles by students in LMS. The MRR references are obtained using a personalized dynamic sliding window, which is able to adapt its size according to the ratio of references/titles mentioned by students’ in the previous semester. The ATR references are obtained by selecting references that represent the interest of a larger number of students in a particular reference over the year(s). This novel approach has helped in incrementally updating the association rules mined from the log files of an LMS database. The experiments and the evaluation of the proposed methods show that the MRR and ATR referred titles are in sync in numbers and, hence, we can explicitly recommend the learning material references by using either of the proposed techniques.

A Machine Learning-Based Topic Extraction and Categorization of State Universities and Colleges (SUC) Customer Feedbacks

Lorna T. Soriano, Thelma D. Palaoag

Bicol State College of Applied Sciences and Technology, Philippines

ABSTRACT

Academic institutions collect an increasing amount of data through surveys. Aside from the
usual numeric ratings obtained from the survey, the hierarchical concerns and sentiments can also be identified through the text-based customer feedbacks. These feedbacks contain text about customer experiences with the products offered and services delivered by an institution. A challenge in analyzing unstructured customer feedback is in making sense of the topics that are expressed in words used to describe these experiences. 

This study develops a model for text analysis of the customer feedbacks that exploits machine learning algorithms such as topic modeling. This further described the text mining process steps undergone in extracting useful information from the customer survey feedbacks of one of the SUCs in the Philippines, the Bicol State College of Applied Sciences and Technology (BICAST). Moreover, the Latent Dirichlet Allocation (LDA), a topic modeling method, was used for automatic text summarization and topic extraction from these text-based data. The topmost concerns extracted from the feedbacks were identified. This information provides useful insights for management analysis as well as inputs for policy making.

### IC060 17:45-18:00

Mobile App Classification Method Using Machine Learning Based User Emotion Recognition

**Taewon Kwak, Moonhyun Kim**

Department of DMC Engineering, Sungkyunkwan University, South Korea

**ABSTRACT**

In this paper, we propose a convolutional neural network based application method which shows superior performance in image classification. Recently, various requirements such as emotional UI, rather than the existing Touch UI method, have been presented in the mobile UI field, and a methodology for this is presented. First, it recognizes human facial expressions through Convolutional Neural Networks (CNN). Based on the second recognized facial expression, a multi-layer perceptron (MLP) Learning. This enables the application to be executed only by the user’s face when the mobile application is restarted. In order to implement and experiment on this, we implemented and experimented with the Google inception model structure to enhance the performance of face recognition in the first CNN – based facial recognition step. In the second application classification step, We implemented a method using multidimensional data for recognition. As a result, CNN – based facial expression recognition achieved about 98% accuracy, and based on this, the application classification to be studied in this paper was able to obtain a maximum of 97.9% accuracy.

### IC2-003 18:00-18:15

The Effects for Programming Learning using Actual Robots Control with Scratch

**Masahiro Osogami, Kazumasa Ohkuma and Kazutomi Sugihara**

Fukui University of Technology, Japan

**Abstract**

Recently, the ICT (Information and Communication Technology) engineers’ workforce shortage has been occurred with the progress of ICT development. In the new educational guidelines of Japan, the learning contents about ICT have been extended. Along with this,
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<th>effective teaching materials for learning programming are in demand. In this study, we constructed a programming learning environment which can control actual robots using Scratch, which was developed at MIT. Using questionnaire data, we analyzed the effect of the learning environment on the learning experience of students. And by the results, it was found that with this learning environment, it is possible to improve the learning effect of any students, regardless of their original interest in computer operation.</th>
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| IC2-028 | Developing an APP with Taiwanese image for Reminiscence Therapy of Dementia  
**Pei-Fen Wu, Hui-Jiun Hu, Kuang-Yi Fan**  
National Chunghua University of Education, Taiwan  
**Abstract**  
With the changing population structure, aging of the population becomes a prominent topic that each country attaches great importance to. Many studies have been devoted to delaying the progression of dementia in the elderly, and reminiscence therapy as one of the main non-drug therapies can effectively slow down the deterioration of dementia patients. Most dementia patients remember the past and enjoy talking about their memories. This kind of life review is also a self-help method of repairing progressive brain unresponsiveness. Narration and re-storying is one of the ways to help dementia patients stimulate and restore their memories. Therefore, this study includes observing the reminiscence therapy behavior of dementia patients and caregivers in a long-term care center, analyses the existing storytelling system, 185 questionnaires surveyed about old Taiwan are conducted in eight categories to match the reminiscence imagery therapy, then develops the ReStor APP, and plans and implements the design of acceptable technology experiences for dementia patients. The study expects to slow down the mental decline of patient’s and fill the memory voids of the elderly and their families. The research developmental the APP that providing reference values for specific elderly user experiences in Taiwan, the images database is used will benefit in providing reference for the design of memory for Taiwan’s elderly. |
| IC2-062 | An Ios-Device-Oriented Personally Adapted e-Learning System  
**Jinhua She, Shumei Chen, Sumio Ohno, and Hiroyuki Kameda**  
Tokyo University of Technology, Japan  
**Abstract**  
Recently, smart phones have been spreading rapidly as a personally customized tool. While most e-learning systems are available in daily life, they failed to reach the level of personal adaptation. To solve this problem, this study devised a personally adapted e-learning system for Ios devices. In this system, technical Japanese was adopted as an example to construct a teaching course for Chinese students. This ensures that a user effectively uses the system anywhere in his free time. A pre-examination is given to a user at the first access to the system. The system constructs |
a tailor-made course for the user based on the examination results. However, the system does not construct the course in a fully automatic way. It leaves room for users to confirm, adjust, and finally fix the course so that the course can be personally adapted to users’ learning goals, needs, abilities, etc. The e-learning system makes full use of multimedia to improve learning efficiency. In particular, it takes full advantage of interlocking functions between devices of an iPhone and an Apple Watch. An interface was designed for an Apple Watch to allow a user to learn Japanese technical terms using the watch even in an overcrowded train during the rush hours. Some test and questionnaires were carried out, and the results verified the validity of the system.

| IC039  
18:45-19:00 | Missed signals in the congruency between visual distracting cues and auditory goals  
Luz L. Córdova Berrios, Victor Flores Benites, Carlos Mugruza-Vassallo  
Universidad de Lima, Perú  
ABSTRACT  
Previously, auditory-visual paradigms have been studied when the person is reading a text and receives a distractive sound stimulus. In this study, attention to sound stimulus is evaluated while receiving distractive visual stimuli. The present study questioned whether the difference between visual and auditory meaning would be considered a high or a low cognitive load. Therefore, in this study, we explored the congruency of visual and auditory stimulus, the gender of the voice, the gender of the individual participating, and others as variables, omissions per participant are influenced by the audio/image inequality. More omissions were using information gathered from 1000 events. The results revealed that the omissions made by the observed when the number presented in audio was different from that presented in the image (p = 0.001), thus showing a linear correlation (r = −0.54, p < 0.01). The interpretation of these omissions was complementary to the findings by Wolfe and colleagues (Wolfe, Horowitz & Kenner, 2005), who explored at least 2000 events per participant and where the distractive element was an auditory bottom-up. In this way, the number of omissions that appeared in only 1000 events of the auditory top-down type occurred because such omissions are caused by the bottom-up visual events—where the difference of 120.6 ms between congruency and incongruence could be explained according to the findings of Lavie & Cox (1997) of 40 ms, of high working memory (Lavie, 2005) of about 60 ms, plus the gap between audio and image, which could be considered about 20 ms. |

| IC063  
19:00-19:15 | Mobile Device as Support Tool in Student Learning  
Sussy Bayona Ore, Dayana A Pizarro Chavez and Luis Carrera Sicha  
UNIVERSIDAD AUTÓNOMA DEL PERU, Peru  
ABSTRACT  
Nowadays mobile devices Plough used by people in different ways to make to profit. In the present article, to no systematic literature review was carry out regarding these devices,
published from 2012 to 2017. The factors were detected that influence the Use of these, advantages and disadvantages offered by the use of mobile applications that strengthened learning. Researchers seek to dispel doubts about the possibility of choosing mobile devices Ace tools for learning. Ace to result of this study it was found that the factors that influence the adoption of these tools plough relevant, the advantages plough really beneficial and that the academic performance can be increase relatively in the students.

Dinner @ St Leonards Foyer

[19:30-21:00]
August 23th, 2018

Session IV
[Education and Learning]

⏰ 16:30-19:30
📍 Bonnar Room @ Ground floor

Chaired by Prof. Ying-Chieh Liu
Chang Gung University, Taiwan

12 presentations—
IC2-013, IC2-015, IC2-019, IC2-039, IC2-054, IC2-2005, IC2-075, IC2-3003, IC2-1001,
IC2-1006, IC2-058, IC2-047

*Note:

➢ Please arrive 30 minutes ahead of the sessions to prepare and test your PowerPoint.

➢ Certificate of Presentation will be awarded to each presenter by the session chair when the session is over.

➢ One Best Presentation will be selected from each parallel session and the author of best presentation will be announced and awarded when the session is over.
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| **IC2-013 16:30-16:45** | Evaluating Reading Material Formats on Children Learning in Science Education  
**Su-Ju Lu**, Ying-Chieh Liu, Mei-Chun Lin, Fang-Hsuan Lu  
National Taipei University of Education, Taiwan  
Abstract  
Children nowadays are exposed with a variety of reading formats, however their influence on different types has not yet fully explored. This study examines learners’ learning achievement and motivation involving in three different reading formats, i.e., text books, pop-up books, and AR e-books, in the context of natural science instruction focusing on household plants. Study participants of the 4th graders included six classes in northern Taiwan and were paired to form a control group of 43 students, an experimental group A with 52 students, and an experimental group B with 53 students. The results showed that students who learned with the AR e-book demonstrated significant improved learning achievement over those who used the printed textbook. As for learning motivation, no significant difference was found between the printed textbook and pop-up book groups, both were significantly better than that of the AR e-book group. This research contributed to the evaluation of the three reading formats that inherit various degrees in interactivity and digitization. The results could be useful when deciding an appropriate reading format under the consideration of reading comprehension and reading motivation. Further study include the improvement of learning motivation in the AR e-book. |
| **IC2-015 16:45-17:00** | A Novel Mobile Application Using Doodle in Nutrition Education Based on Machine Learning  
**Ying-Chieh Liu**, Su-Ju Lu, Chien-Hung Chen  
Chang Gung University, Taiwan  
Abstract  
Using machine learning in support of education has yet explored so far. Under user centered design paradigm, this paper investigates how existing machine learning services can be transformed and utilized. We present the idea of user doodle for communication and reporting of dietary intake in the domain of nutrition education. An app prototype named DoodleCar (Doodle Calorie) is developed and demonstrated. This research serves a role to conduct innovative use of existing AI services for educational purpose. |
| **IC2-019 17:00-17:15** | Methodology of Transforming Digital Competence Framework to Curricula: Croatian e-Schools project example  
**V. Kirinić**, R. Mekovec and N. Žajdela Hrustek  
University of Zagreb, Croatia  
Abstract  
In 2015 the programme entitled “e-Schools: A comprehensive informatization of school operation and teaching processes with the aim of creating digitally mature schools for the
21st century” started in Croatia. The results of the pilot project e-Schools include a Digital Competence Framework for School Employees: Teachers, Principals and Administrative Staff, and based on this, the Curriculum for the Enhancement of Digital Competences of School Employees: Teachers, Principals and Administrative Staff. In the paper, the methodology of transforming the Digital Competence Framework to Curricula is described: from digital competencies expected from school staff, through learning outcomes (units) to the modules and implementation/instruction units to be used as the base for educating school staff and helping them to achieve and/or improve their own digital competencies.

**IC2-039**
**17:15-17:30**

**Technology Enhanced Classroom for Low-Income Children’s Mathematical Content Learning: A Case Study**

Sam Clark and **Lena Lee**

Miami University, USA

**Abstract**

This paper is about teaching third-grade Common Core mathematical content as the learning goal of mathematics (NCTM, 2014) by using digital media—namely, tablets—in a low-income urban school classroom. The Substitution, Augmentation, Modification, and Redefinition (SAMR) model was used for the technology aspect of this paper, which presents how these instructional methods were adapted to the teacher’s modeling and encouragement of the children’s authorship in learning mathematics.

**IC2-054**
**17:30-17:45**

**The Teacher’s Assistant App**

**Michael Schraudner**

Tokai University, Japan

**Abstract**

This presentation will focus on the development of software that will streamline the process of finding and correcting student errors, helping educators pinpoint key areas for instruction. Using smartphones or computers, students input weekly writing assignments into a Google form, which is then sent to a spreadsheet. The teacher can then easily grade assignments manually as well as by using a variety of automated grammar/language tools. Based on the results, the system will send feedback to the student and teacher. It can also be programmed to automatically generate a homework assignment based on the most common mistake in the writing sample. The information also assists the instructor in correcting submissions and can help students individually monitor and improve their writing. These programs can save educators time and resources as they quickly assess and identify problematic areas.

**IC2-2005**
**17:45-18:00**

**Comparison of performance and satisfaction between two distinct groups of learners in online course(s)**
**SESSIONS**

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<th>Session</th>
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<tr>
<td>IC2-075</td>
<td>The Development and Application of Collaborative Design Modules for Multidisciplinary Collaboration and Facilitating Creativity: An Experience from D-School@NTU</td>
<td>Shih-Yao Lai, Liang-Gui Yu, Shang-Hsien Hsieh, Mei-Mei Song, and Te-Sheng Chang</td>
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**Nohjin Kee, Stephen G. Matthews and Chris Perumalla**

Department of Physiology, University of Toronto, Canada

Abstract

The Department of Physiology at University of Toronto was one of the first universities to offer a fully integrated online physiology course, which was offered to two distinct group of learners. The first group (SCS 2159) consisted mostly of learners who require a physiology course as a pre-requisite for second-degree professional programs, and many of them had no background in physiology prior to taking this course. The second group (Physician Assistant Program - PAP113 course) already has a prior degree in one of the health science professional programs but were taking this course as part of their program requirement. SCS 2159 is offered for 16 weeks while PAP course is offered for 9 weeks. Both courses were coordinated by the same course coordinators and the evaluation and assessments were near identical. We have analyzed student performance for three years in both these courses and have found that there was a significant difference in learner performance based on term assessments and final grades. The PAP group (already in a professional degree program – PAP) performed significantly better compared to the first group (84% vs. 71%) despite the fact that the online physiology course was delivered in half the time compared to the first group of learners. To determine learner satisfaction, we have analyzed survey results for three years. We have found that learner satisfaction was greater in the second group (5.82/7 vs 5.38/7) based on the question “This course was a valuable learning experience”. Our results suggests that the second group of learners have performed better and have rated the course higher despite the fact that their course (PAP113) was deemed more difficult due to accelerated schedule (delivered in 9 weeks instead of 17 weeks) and that the learners were taking other courses (anatomy, clinical courses) concurrently. Based on our results, we suggest that learner expectation, motivation and background (whether already in a professional degree program or preparing to apply for a professional degree program) correlates with learner performance and satisfaction; other variables will be also discussed.

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**IC2-075**

**18:00-18:15**

The Development and Application of Collaborative Design Modules for Multidisciplinary Collaboration and Facilitating Creativity: An Experience from D-School@NTU

Shih-Yao Lai, Liang-Gui Yu, Shang-Hsien Hsieh, Mei-Mei Song, and Te-Sheng Chang

National Taiwan University, Taiwan

Abstract

Convergent and divergent thinking are both important for solving problems. The former helps to produce an already known answer; while the latter to bring forth answers to the problem. Base on results of a previous three-year research (2014-16) on college teaching methods called “i.edu”, we found that multidisciplinary collaboration was beneficial to students’ project-based and problem-solving learning process. However, we also found it
could be even more effective if proper collaborative methods were utilized. In this research, we adopt the concept and spirit of “participatory design” accordingly to develop collaborative method-modules for multidisciplinary group to work with multiple perspectives and thinking, in order to hence products of better creativity. For testing the modules and inspiring new possible modules to be emerged, a two-day workshop that combines the convergent and divergent thinking process took place in D-School@NTU, in which the participants of 24 under- and postgraduate students with different disciplines teamed up to learn the usages of developed methods and to design intra-collaborative design/planning methods-modules that meet their tasks aiming at a selected neighborhood of Taipei city, Nanjichang. In this workshop, participants’ group needed to produce action plans by identifying the neighborhood’s problems with given information and propose several collaborative design method-modules based on their action plans. From the participants’ feedbacks, the observation of the design process, and the design results, the given modules relatively helped the quick production of the action plans. All groups propose method-modules with creativity of various levels, although most of them are still inapplicable. The task of the workshop also derives a question—Is working method a good object for design?

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<th>IC2-3003</th>
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<tr>
<td><strong>The First Step towards Automatic Quality Evaluation of Chinese Vowel Pronunciations for Foreign Learners for Self-Training</strong></td>
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<td><strong>Junya Shinzawa</strong>, Shumei Chen, Jinhua She, Hiroyuki Kameda, and Sumio Ohno</td>
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<td>Tokyo University of Technology, Japan</td>
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<tr>
<td><strong>Abstract</strong></td>
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<td>Nowadays, computer-assisted language learning (CALL) systems are widely used for language education. Since the pronunciation of Chinese is difficult, it is important to build a system to evaluate a learner’s pronunciation in a real-time fashion so as to maintain the motivation of learning. This study tried to develop such a system that not only judges pronunciations from the viewpoint of acoustic phonetics, but also provides a learner an advice on improving his pronunciations. As the first step, we built the system for Chinese monophthong vowels, and analyzed the acoustic features of the pronunciations between Chinese and Japanese. The results show that it is possible to distinguish the characteristics of pronunciation using the formant frequency, which is one of the acoustic features; and it is also possible to distinguish round and unround lips, which has been difficult, by using the three kinds from formant frequency of first formant to third formant.</td>
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<th>IC2-1001</th>
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<td><strong>Effectiveness of Augmented-Reality Books on “Hand Lettering Calligraphy with Parallel Pens” towards the Pre-Service Teachers’ Production Capability of Instructional Media</strong></td>
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<tr>
<td><strong>Nuttaphong Kanchanachaya</strong>, and Kanita Nitjarunkul</td>
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<td>Prince of Songkla University, Thailand</td>
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Abstract
The purposes of this study were to (1) create the AR books on hand lettering calligraphy with parallel pens; (2) examine the usage effect on the pre-service teachers’ production capability of instructional media; and (3) investigate the satisfaction level towards the AR books. The sample comprised 123 pre-service teachers who were enrolled in Educational Technology and Innovation. Data collection utilized the following research instruments: (1) The AR books on hand lettering calligraphy with parallel pens; (2) A test form of instructional media production capability; and (3) A survey on pre-service teachers’ satisfaction towards the AR books. The data was analyzed in percentage, mean, standard deviation, and t-test.

The findings suggested that 1) the AR books on hand lettering calligraphy with parallel pens were created with high quality at a mean score of 4.45 whereas the E1/E2 efficiency scores were also as high as 83.95 and 82.57, respectively; 2) the use of the AR books enhanced the production capability of instructional media with .05 significance level when compared to the traditional method used by the control group; and 3) the pre-service teachers were the highest level satisfied to AR books with a mean satisfaction score of 4.53.
# SESSIONS

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<th>IC2-058</th>
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<td><strong>UpGlass: redefining the way of learning</strong></td>
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<td><strong>Juliano Portela, Bhavika Ramchandani</strong></td>
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<td>Colégio Militar de Manaus, Brazil</td>
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<td><strong>Abstract</strong></td>
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<td>The UpGlass Concept is to offer cheap glasses that can be used in any environment, from a simple clock display to a complex system of GPS. The initial idea is to have a main computer that sends data to all the glasses connected to a wi-fi or a bluetooth network. The device is attached to a pair of glasses and it provides a little screen up ahead the field of vision, through a prism. The screen shows to its user maps, weather forecast, etc., like today's smartwatches. The main purpose of the UpGlass, however, is to adapt it to a school environment. In a classroom, for instance, a base computer would provide to all the glasses connected to it a huge variety of school activities and data. While doing an activity and having any doubt, a student may access some grammar information, for example, and read it in the UpGlass. In the classroom, all the data is controlled and provided by a teacher, so that the disciplinary training, the focus and the interest of the student are maintained. Many school activities can be done through the UpGlass. In order to have more information and topics of the classes, the student will be able to view animated demonstrations during the class. The UpGlass functioning is quite simple, it has an Arduino Nano, like a motherboard. It is the computer itself, it process and manage all the data from the sensors. The UpGlass has an OLED display that projects all the data a the prism. When used with a smartphone, it shows more precise data, provided by the internet. Its structure has been printed in a 3D printer with ABS plastic. These simple equipments and processors have been chosen aiming that all education institutions can have access and enjoy all the resources that the UpGlass offers. It can also be used by engineers, electricians and by many other professionals that need quick information and cannot waste time looking at their phones. In a nutshell, the UpGlass has a huge potential and can revolutionize the way of learning in the whole world.</td>
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<th>IC2-047</th>
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<td><strong>To Cultivate the Critical Thinking Skill of Students in Fine Arts by Incorporating Smart Classroom</strong></td>
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<td><strong>Yue Peng</strong></td>
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<td>Guangzhou Academy of Fine Arts</td>
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<td><strong>Abstract</strong></td>
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<td>In order to cultivate students' intellectual and cognitive literacy, development of critical thinking skills should be emphasized in higher education. Without an critical understanding of how theories and hypotheses operate in our lives, a student would be incapable to grasp</td>
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the technique of discovering the assumptions that give guidance of analyzing and solving the problems, and making the reasonable judgments. Currently, due to the development of advanced technology, higher education tends to establish a more social, interactive, flexible, and student-centered learning environments. The smart classroom, which refers to a classroom that integrates educational technology to facilitate students' learning ability, critical thinking and communication capacity, would be a way to launch the innovation of the traditional teaching-learning environment. Based on the constructivist epistemology, the smart classroom is more likely to apply the support from the technology during teaching and learning process, however, when this process involves students who specialize in the specific subject, even the technology-enhanced learning environment needs more exploration of class instruction. In order to throw light on this issue, the research mainly investigates the possibilities of developing college students’ critical thinking skills by incorporating the smart classroom. Two inventories would be used: The California Critical Thinking Disposition Inventory (CCTDI) and Preference Instrument of Smart Classroom Learning Environments (PI-SCLE), and three questions would be concerned: 1. what’s the smart classroom preference of the student who specialized in fine arts? 2. what is the relationship between the critical thinking tendencies and students’ preference? 3. what is the guidance for the appropriate instruction in smart classroom? The study tries to indicate that proper teaching model and course guidance could help to narrow down the gap between technology and learning effectiveness.

Dinner @ St Leonards Foyer
[19:30-21:00]
| IC2-073 | Digital Learning Ecosystem by Using Digital Storytelling for Teacher Profession Students  
K. Sarnok, P. Wannapiroon, and P. Nilsook  
King Mongkut’s University of Technology North Bangkok, Thailand  
Abstract  
This research aims 1) to design a Digital Learning Ecosystem, 2) to study the process of teaching digital storytelling in the digital ecosystem, and 3) to evaluate the appropriateness of digital learning ecosystem for teacher profession students. The target audience were 12 experts in education and information technology and education communication to evaluate the developed digital learning ecosystem model. Research instruments include the evaluation model of learning. And data analysis use content analysis and use of statistics, mean and standard deviation. The results show that 1) the ecosystem consists of three main components: (1) Digital Learning Ecosystem, consisting of Digital Learning Environment and Digital Storytelling, (2) Digital Storytelling Learning Ecosystem, and (3) Digital Storytelling Learning & Teaching Community. 2) the process of teaching digital storytelling in the digital learning ecosystem consists of the responsibilities are as (1) Teaching, providing knowledge and advice are responsible by teacher, IT support staff, supervisor, teaching practicum advisor/school mentor teachers. (2) Learning is responsible by the teacher profession students who must learn from digital devices and the Internet. The learners can control their own time, place and learning direction. In learning, students will have the opportunity to participate in the study, present their work through digital storytelling which make the students see their potential, improve the skills to find information, storytelling, data analysis, data synthesize, communicate, presentation, organize ideas, questioning, and teamwork and lifelong learning awareness. (3) Supporting means the backstop that support, give advice, and encourage the learners in real-life learning and digital ecosystem learning. This group includes friends, parents and guardian. 3) The results of the evaluation of the digital learning ecosystem in the overall were in highest level ( = 4.54, SD = 0.21). When examined in individual aspect, there were 4 items which results were in highest level i.e. Digital Learning Environment ( = 4.61, SD = 0.44), Digital Storytelling ( = 4.75, SD = 0.42), Learning ( = 4.83, SD = 0.39) and Supporting ( = 4.61, SD = 0.02). The result of the evaluation of the other items were in high level. Therefore, it can be concluded that the developed model of ecosystem can be apply with the important components such as 1) Digital Learning Ecosystem, consisting of Digital Learning Environment and Digital Storytelling, 2) Digital Storytelling Learning Ecosystem and 3) Digital Storytelling Learning & Teaching Community. |
| IC2-1007 | A novel framework for improvement of data quality on integration  
Zhang Guobao, Wang Zhijian  
Hohai University, China  
Abstract  
In the integrated situation of distributed, heterogeneous, and frequently changing data the improvement of data quality issue is more complicated and difficult. That is because there are some characteristics such as dynamic, heterogeneous, timeliness, inherent data quality etc. The issue of inherent data quality dimensions was discussed in many former |
### IC049
**Cross-Border B2C E-Commerce Based on Theory of Reasoned Action**  
Wan-lin Lee, Delphine Ya-Chu Chan  
Beijing Institute of Technology, China  

**ABSTRACT**  
In this paper, based on the theory of reasoned action, the factors affecting consumers’ willingness to spend would fall into two categories: subjective norm and consumption attitude. Taking perceived risk as a moderating variable, the paper explores the relationship among subjective norm, consumption attitude and consumption intention in the context of B2C cross-border e-commerce. The 397 valid questionnaires show that consumers’ subjective norm and attitude have positive influences on their intention, while consumers’ perceived risk does not play moderating effects on the relationship between subjective norm and intention nor between attitude and intention.

### IC042
**A Thermal Balance Oriented Task Mapping for CMPs**  
Jian Wang, IEEE member, Jinzhi Lu, Shize Guo, Zhe Chen and Yubai Li  
University of Electronic Science and Technology of China, China  

**ABSTRACT**  
CMP (Chip Multi Processors) has been concerned and applied in more and more fields. With the technical progress in semiconductor manufacturing, the focus/research on on-chip power density and heat generation of the chips are increasing. The heat distribution of the chip heavily affects its reliability. In this article a heat-balancing task mapping algorithm is proposed to optimize the heat distribution and ensure the reliability of CMP. First, the thermal distribution of CMP is analyzed by what. Then, based on above analysis, a cost function based on usage and location of on-chip processors is proposed. Finally, a mapping algorithm based on above cost function is developed to assign threads to cores while running applications with the min-cost principle dynamically. The simulation results reveal that the heat-balancing algorithm proposed effectively optimizes heat distribution and ensures computational performance either.