ITQM 2018

6th International Conference on Information Technology and Quantitative Management

October 20-21, 2018

Omaha, Nebraska, USA
Welcome Message from the Conference Organizers

Welcome to the Sixth International Conference on Information Technology and Quantitative Management (ITQM 2018), October 20-21, 2018, Omaha, Nebraska, USA. The theme of ITQM 2018 is "Advanced Information Technology and Global Business Competition". ITQM 2018 is organized by International Academy of Information Technology and Quantitative Management (IAITQM) and University of Nebraska at Omaha, USA.

IAITQM was formally inaugurated on June 3, 2012 with more than 50 founding members from China, United States, Australia, Japan, Lithuania, Poland, Romania, Spain, Singapore, South Korea, The Netherlands, Turkey and other countries. The International Conference on Information Technology and Quantitative Management (ITQM), established by IAITQM, is a global forum for exchanging research findings and case studies that bridge the latest information technology and quantitative management techniques. It explores how the use of information technology to improve quantitative management techniques and how the development of management tools can reshape the development of information technology. The First International Conference on Information Technology and Quantitative Management (ITQM 2013) took place in Suzhou, China. The Second International Conference on Information Technology and Quantitative Management (ITQM 2014) was held in Moscow, Russia. The Third International Academy of Information Technology and Quantitative Management (ITQM 2015) was held at Rio de Janeiro, Brazil. The Forth International Academy of Information Technology and Quantitative Management (ITQM 2016) was held at Asan, Korea. The Fifth International Academy of Information Technology and Quantitative Management (ITQM 2017) was held at New Delhi, India.

ITQM 2018 covers all topics in the broad ranges of Information Technology and quantitative management, including, but not limited to:

- Advances in Quality Management
- Analytics in Human Resource Management
- Data Mining, Data Warehousing, Data Analysis
- Logistics, Finance, Marketing, Strategy, Human Resources, IT, Project Management, Process Improvement, Sustainability and Innovation
- Applications of Social Networks Analysis in IT-enabled quantitative management and decision making
- Banking regulation and financial services
- Commodity and Product Pricing
- Corporate finance, capital structure and dividend policy
- Data Science issues in information technology and quantitative management
- Developments in Multicriteria Analysis related to IT-enabled quantitative management
- Green Marketing
- Habitual domain and behavioral approaches to Big Data analytics
- IT-enabled quantitative management and decision making in the government sector and in public and private companies
- IT-enabled quantitative management and maturity models
- Nero-Marketing
- Quantitative management tools
- Service Operations Management
- Social Media and Mobile Marketing
- Soft computing methods in quantitative management and decision making processes
- Sustainability Issues in Trade
- Sustainable Supply Chain Management
- Technology for Training and Development

Technical exchanges within the research community will encompass the invited keynote lectures, special sessions, and workshops.
At ITQM 2018, we have invited the following 11 world leading keynote speakers to give their current and future visions about Information Technology and Quantitative Management:

- Zongben Xu, a member of the Chinese Academy of Sciences and Xi'an Jiaotong University, China on "Model Driven Deep Learning";
- Luiz F Autran M Gomes, a member of the National Academy of Engineering and Ibmec Rio de Janeiro, Brazil on "Soft Computing Inspired by Prospect Theory";
- Ning Zhong, director of the International Web Intelligence Consortium (WIC), Maebashi Institute of Technology, Japan on "Connecting Network and Brain with Big Data";
- James Spohrer, director of IBM Cognitive Opentech Group, USA on "Open Technology, Innovation, and Service System Evolution";
- Shu-Cherng Fang, Walter Clark Chair and Distinguished University Alumni Graduate Professor Operations Research and Industrial & Systems Engineering, North Carolina State University, USA on "Sub-one" Similarity Measure for Quantitative Management involving Human Behavior";
- Po-lung Yu, Distinguished Professor, University of Kansas and Moussa Larbani, International Islamic University Malaysia on "A Habitual Domains Framework for Post-Data Mining Analysis and New Knowledge Creation for Better Decision Making";
- Cheng-Few Lee, Distinguished of Finance, Rutgers University, USA on "The Relationship between CEO Inside Debt Holding and Firm Investment";
- Heeseok Lee, Chair Professor of IT and Strategy, Korea Advanced Institute of Science and Technology, Korea on "Technology Evolution in the Forth Industrial Revolution Age; Potential for Disruptive Businesses";
- James M. Tien, a member of the National Academy of Engineering and University of Miami, USA on "Convergence to Real-time Decision Making";
- Fuad Aleskerov, Professor of National Research University Higher School of Economics and Institute of Control Sciences of Russian Academy of Sciences, Russia on "Problems in Education Forecast of Enrollment, Heterogeneity and Efficiency of Universities";

There were more 221 scholars and students from 16 countries and regions submitted their papers to ITQM 2018. The authors are from Australia, Brazil, Chile, China, Hong Kong, India, Japan, Mexico, North Korea, Romania, Russia, Spain, South Korea, Taiwan, United Kingdom and United States. After the peer-review process, we have accepted 83 high-quality papers from all submitted papers for presentation at the conference. These papers are published by Elsevier in their Procedia Computer Science series. They are allocated into 1 main track, 10 special sessions and 5 workshops.

Like the previous conferences, ITQM 2018 relies strongly on the vital contributions of our workshop organizers to attract high quality papers in many subject areas. We would like to thank all special session/workshop organizers, ITQM committee members, and reviewers for their contribution to ensure a high standard for the accepted papers. We would like to express our gratitude to the conference committees for their enthusiastic work towards the success of ITQM 2018. We owe special thanks to our sponsors: University of Nebraska at Omaha, USA; Research Center on Fictitious Economy and Data Science and Key Lab of Big Data Mining and Knowledge Management, Chinese Academy of Sciences; School of Economics and Management, University Chinese Academy of Sciences; Institute of Policy and Management, Chinese Academy of Sciences; Southwest Minzu University, China; Business Intelligence Society, Chinese Academy of Management, China and Tainfu International Institute of Big Data Strategy and Technology, Chengdu, China for their generous support.

We wish you a successful and enjoyable conference at Omaha!

October 20-21, 2018, Nebraska, USA
Peter Wolcott and Yong Shi
Conference Co-chairs
Yingjie Tian and Heeseok Lee
Organizing Co-chairs
The ITQM 2018 Program/Conference Chairs:

1. Conference Organizing Committees:
   - Honorary Chair: Walter Scott, Jr., Daniel Berg, James Tien and Hesham Ali
   - Conference Chair: Yong Shi (IAITQM/UNO/CAS) and Peter Wolcott (UNO)
   - Organizing Chair: Yingjie Tian (CAS) and Heeseok Lee (KAIST)
   - Program Chair: Enrique Herrera Viedma and Gang Kou
   - Tutorial Chair: Shusaku Tsumoto and Xiaohui Liu
   - Special Sessions and Workshops Chair: Felisa Cordova and Jongwon Lee
   - Publications and Proceedings Chair: Ioan Dzitac and Luiz F. Autran M. Gomes
   - Awards Chair: Daniel Berg, Florin G. Filip and Yong Shi
   - Financial Chair: Wikil Kwak and Jianping Li

2. Conference Organizers:
   - International Academy of Information Technology and Quantitative Management (IAITQM)
   - University of Nebraska at Omaha
   - Chinese Academy of Sciences

3. Local Committee:
   - Zhengxin Chen (Chair)
   - Wei Deng
   - Yuejin Zhang
   - Fangyao Liu
   - Huimin Tang
   - Xinyang Zhang
   - Minglong Lei
   - Jiabin Liu
   - Yuanchun Zheng
   - Yeran Tang
   - Yunlong Mi
   - Wei Daï
   - Biao Li
   - Yi Qu
   - Pei Quan
   - Haotian Li

Program Committee:
   - Jae-Hyeon Ahn, KAIST Business School, Seoul, Korea
   - Jin-Ho Ahn, School of Electronic Display, Hoseo University, Korea
   - Vandana Ahuja, JBS, India
   - Fuad Aleskerov, Russian Academy of Sciences, Russia
   - Vassil Alexandrov, Barcelona Supercomputing Center, Spain
   - Hesham Ali, University of Nebraska at Omaha, USA
   - A.D. Amar, Seaton Hall University, USA
ITQM 2018
Information Technology and Quantitative Management
Omaha, Nebraska, USA

- Alexander Belenky, HSE/Moscow, MIT/Cambridge, Russia
- Daniel Berg, Rensselaer Polytechnic Institute, USA
- Marian Bubak, AGH University of Science and Technology, Poland
- Sergiy Butenko, Texas A&M University, USA
- Francisco Javier Cabrerizo, UNED, Spain
- Seong Wook Chae, Department of Business Administration at Hoseo University, Korea
- Yuanping Chen, Computer Network Information Center, Chinese Academy of Sciences, China
- Zhangxin Chen, University of Nebraska at Omaha, USA
- Siwei Cheng, Chinese Academy of Sciences, China
- Guotai Chi, School of Business Management, Dalian University of Technology, China
- Francisco Chiclana, De Montfort University, United Kingdom
- Vyacheslav V. Chistyakov, NRU HSE, Nijniy Novgorod, Russia
- Byounggu Choi, College of Business Administration, Kookmin University, Korea
- Raul Colcher, ASSESPRO, Brazil
- Pablo Cordero, University of Malaga, Spain
- Felisa M. Córdova, University of Santiago de Chile, Santiago, Chile
- Helder G. Costa, UFF, Brazil
- Frederica Darea, Air Force Office of Scientific Research, USA
- Satyabhushan Dash, IIM, Lucknow, India
- Pinaki Dasgupta, IMI, Delhi
- Debdeep De, JBS, India
- Kalyanmoy Deb, India Institute of Technology, India
- Hernán Díaz, University of Santiago de Chile, Santiago, Chile
- Yucheng Dong, De Montfort University, U.K
- Jack Dongarra, University of Tennessee, Knoxville, USA
- Francisco A. Doria, UFRJ, Brazil
- Ioan Dzitac, Agora University, Romania
- Xiaodan Fan, Department of Statistics, Chinese University of Hong Kong, China
- Shu Cherng Fang, North Carolina State University, USA
- Cordova Felisa, University of Santiago de Chile USACH, Chile
- Florin Gheorghe Filip, Romanian Academy, Romania
- Maria do Carmo Duarte Freites, Federal University of Parana, Curitiba, Brazil
- Hamido Fujita, Iwate Prefectural University, Japan
- Fred Glover, OptTek Systems, Inc., USA
- Michel Grabisch, Paris I, France
- Carlos F.S. Gomes, UFF, Brazil
- Luiz F. Autran M. Gomes, IBMEC, Brazil
- Jifa Gu, Chinese Academy of Sciences, China
- Kun Guo, Chinese Academy of Sciences, China
- M. P. Gupta, IIT, Delhi
- Pankaj Gupta, University of Delhi, India
- Sang-Tae Han, Department of Applied Statistics, Hoseo University, Korea
- Jing He, Victoria University, Australia
- Wenxue Huang, Guangzhou University, China
- Zhimin Huang, Adelphi University, USA
- Vigneswara Ilawarasan, IIT Delhi, India
- Hiroshi Inoue, Science University of Tokyo, Japan
- Wenbin Jiao, Computer Network Information Center, Chinese Academy of Sciences, China
- Hyuncheol Kang, Department of Applied Statistics, Hoseo University, Korea
- Young Sik Kang, School of Business Administration at Myongji University, Korea
• Alexander Karminsky, Higher School of Economics, Department of Finance, Russia
• Saroj Kaul, Jindal Global Business School, India
• Deepak Khazanchi, University of Nebraska at Omaha, USA
• Hyeuk Kim, Department of Applied Statistics, Hoseo University, Korea
• Hyungjoon Kim, College of Economics & Business Administration at Hanbat National University, Korea
• Seongyong Kim, Department of Applied Statistics, Hoseo University, Korea
• Gang Kou, Southwest University of Finance and Economics, China
• Murat M. Koksalan, Middle East Technical University, Turkey
• Jeong-Ho Kwak, School of Business at Hoseo University, Korea
• Wikil Kwak, University of Nebraska at Omaha, USA
• Uma Kumar, Sprott School of Business, USA
• Moussa Larbani, Islamic International University, Malaysia
• Cheng-Few Lee, Rutgers University, USA
• Choongseok Lee, Korea Polytech University, Korea
• Heeseok Lee, Korea Advanced Institute of Science and Technology, Korea
• Hyoung-Yong Lee, School of Business, Hansung University, Korea
• Jongwon Lee, Hoseo University, Korea
• Stanley Lee, Kansas State University, USA
• Michael Harold Lees, Nanyang Technological University, Singapore
• Alexander E. Lepskiy, HSE, Moscow, Russia
• Aihua Li, Central University of Finance & Economics, China
• Duan Li, Chinese University of Hong Kong, Hong Kong, China
• Jianping Li, Chinese Academy of Sciences, China
• Shanling Li, McGill University, Canada
• Weigang Li, University of Brasilia, Brazil
• Xingsen Li, NIT, Zhejiang University, China
• Xiaodong Lin, Rutgers University, USA
• Hai Liu, School of Computer, South China Normal University, China
• Jiming Liu, Hong Kong Baptist University, Hong Kong, China
• Rong Liu, University of California at Los Angeles, USA
• Xiaohui Liu, Brunel University, United Kingdom
• Yanbin Liu, NIT, Zhejiang University, China
• Ying Liu, Chinese Academy of Sciences, China
• Zhidong Liu, China
• Aleksey Lobanov, Bank of Russia, Russia
• Wen Long, Chinese Academy of Sciences, China
• Enrique López, University of Concepción, Concepción, Chile
• David H. Lorenz, Northeastern University, USA
• Robert M. Losee, University of North Carolina at Chapel Hill, USA
• Alexander V. Lotov, Russian Academy of Sciences, Russia
• Ping Ma, University of Georgia, USA
• Maria Augusta Soares Machado, Ibmec-RJ and Fuzzy Consultoria Ltda, Brazil
• Ivan Coste Maniere, Skema Business School
• Bo Mao, Nanjing University of Finance and Economics, China
• Joao C.S. de Mello, UFF, Brazil
• Andreas Merikas, National Research University Higher School of Economics, Russia
• Jinyoung Min, Chosun University, Korea
• Cid Miranda, SUCESU, Brazil
• Rajnish Kumar Misra, JBS, India
• Mamta Mohapatra, IMI, Delhi
- Ashok Wahi, JBS, India
- Jyrki Wallenius, Aalto University School of Economics, Finland
- Hsiao-Fan Wang, National Tsing Hua University, Taiwan
- James Wang, Pennsylvania State University, USA
- Shouyang Wang, Chinese Academy of Sciences, China
- Yonghui Wang, Director-General of China QClub, China
- Xianhua Wei, Chinese Academy of Sciences, China
- Peter Wolcott, University of Nebraska at Omaha, USA
- Dengsheng Wu, Institute of Policy and Management, Chinese Academy of Sciences, China
- Weixing Wu, School of Banking and Finance, University of International Business and Economics, China
- Weixuan Xu, Chinese Academy of Sciences, China
- Zeshui Xu, Sichuan University, Chengdu, China
- Franco F. Yanine, Technical University Santa María, Valparaíso, Chile
- Chunyan Yang, Guangdong University of Technology, China
- Kyupil Yeon, Department of Applied Statistics, Hoseo University, Korea
- Lean Yu, Beijing University of Chemical Technology, China
- Ming Miin Yu, National Taiwan Ocean University, Taiwan
- Philip S. Yu, University of Illinois at Chicago, USA
- Po-lung Yu, University of Kansas, USA
- Xiaogang Wang, York University, Canada
- Edmundas Kazimieras Zavadskas, Vilnius Gediminas Technical University, Lithuania
- Milan Zeleny, Fordham University, USA
- Chengqi Zhang, University of Technology Sydney, Australia
- Haolan Zhang, NIT, Zhejiang University, China
- Lingling Zhang, Chinese Academy of Sciences, China
- Peng Zhang, University of Technology Sydney, Australia
- Wei Zhang, Tianjin University, China
- Yanchun Zhang, Victoria University, Australia
- Yuejin Zhang, Central University of Finance and Economics, China
- Ning Zhong, Maebashi Institute of Technology, Japan
- Xiaofei Zhou, Chinese Academy of Sciences, China
- Zongfang Zhou, University of Electronic Science and Technology of China
- Xingquan Zhu, Florida Atlantic University, USA
- Yangyong Zhu, Fudan University, China
- Kirill Zinkovskiy, National Research University Higher School of Economics, Russia
Special Sessions/Workshops and Organizers

Special Session 01: Soft computing methods in quantitative management and decision making processes
Ioan Dzitac, Aurel Vlaicu University of Arad & Agora University of Oradea, Romania. (professor.ioan.dzitac@ieee.org)
Florin Gheorghe Filip, Romanian Academy, Romania. (ffilip@acad.ro)
Misu-Jan Manolescu, Agora University of Oradea, Romania. (mmj@univagora.ro)
Simona Dzitac, University of Oradea, Romania. (simona@dzitac.ro)

Special Session 02: The 6th Intelligent Decision Making and Extenics based Innovation
Xingsen Li, Guangdong University of Technology, China. (lixingsen@126.com)
Chunyan Yang, Guangdong University of Technology, China. (fly_swallow@126.com)
Yanwei Zhao, Zhejiang University of Technology, China. (zyw@zjut.edu.cn)
Ping Yuan, NIT, Zhejiang University, China. (yuanping1212@163.com)

Special Session 03: Digital Marketing
Vandana Ahuja, Jaypee Business School, India. (vandana.ahuja@jiit.ac.in)

Special Session 04: Social Networks and Collaborative Decision Making
The Sixth International Conference of Information Technology and Quantitative Management
Enrique Herrera Viedma, University Of Granada, Spain. (viedma@decsai.ugr.es)
Francisco Chiclana, De Montfort University, United Kingdom. (chiclana@dmu.ac.uk)
Yucheng Dong, Sichuan University, China. (ycdong@scu.edu.cn)
Raquel Ureña, De Montfort University, United Kingdom. (raquel.urena@dmu.ac.uk)

Special Session 05: High Performance Data Analysis
Vassil Alexandrov, ICREA Research Professor in Computational Science at Barcelona Supercomputing Centre, Spain. (vassil.alexandrov@bsc.es)
Ying Liu, Professor, University of Chinese Academy of Sciences, China. (yingliu@ucas.ac.cn)

Special Session 06: Cloud, Big Data and Analytics for a Successful Organization
Nitin Upadhyay, Chair and Head Centre for Innovation, Big Data & Analytics, Information Technology Goa Institute of Management Goa, India. (upadhyay.nitin@gmail.com or nitin@gim.ac.in)

Special Session 07: Data Acquisition Architecture and Management for Traceability Analytics (DAAMTA)
Jing He, Swinburne University of Technology, Australia and Nanjing University of Finance and Economics. (lotusjing@gmail.com)
Zhiwang Zhang, Ludong University. (zzwmis@163.com)
Bo Mao, Nanjing University of Finance and Economics, China. (bo.mao@njue.edu.cn)
Hai Liu, School of Computer, South China Normal University. (liuhai@scnu.edu.cn)
Guangyan Huang, Deakin University. (guangyan.huang@deakin.edu.au)
Yimu Ji, Nanjing University of Posts and Telecommunications. (jymu@njupt.edu.cn)

Special Session 08: Neuromanagement and Neuromarketing
Felisa M. Córdova, Faculty of Engineering, University Finis Terrae, Chile. (fcordova@uft.cl)
Rogers Atero, Faculty of Engineering, University Finis Terrae, Chile. (rogers.atero@uft.cl)

Special Session 09: Researches and Cases in Artificial Intelligent Systems Application
Sungbum Park, Hoseo University, Korea. (parksb@hoseo.edu)
Jongwon Lee, Hoseo University, Korea. (jweel@hoseo.edu)
Hee-Woon Cheong, Faculty of Engineering, University Finis Terrae, Chile. (cheong1221@gmail.com)
Workshop 01: The 6th Workshop on Optimization-based Data Mining
Yingjie Tian, Chinese Academy of Sciences Research Center on Fictitious Economy and Data Science, China. (tyj@ucas.ac.cn)
Zhiquan Qi, Chinese Academy of Sciences Research Center on Fictitious Economy and Data Science, China. (qizhiquan@ucas.ac.cn)
Yong Shi, College of Information Science and Technology, University of Nebraska at Omaha, USA. (yshi@unomaha.edu)

Workshop 02: The 9th Workshop on Risk Correlation Analysis and Risk Measurement (RCARM2018)
Jianping Li, Institutes of Science and Development, Chinese Academy of Sciences, China. (ljp@casipm.ac.cn)
Xiaolei Sun, Institutes of Science and Development, Chinese Academy of Sciences, China. (xlsun@casipm.ac.cn)
Rongda Chen, Zhejiang University of Finance & Economics, China. (rongdachen@163.com)
Xiaodong Lin, Rutgers University, USA. (lin@business.rutgers.edu)

Workshop 03: The 3th workshop on Outlier Detection in Financial Data Streams &Big Data and Management Science
Aihua Li, Central University of Finance and Economics, China. (aihuali@cufe.edu.cn)
Zhidong Liu, Central University of Finance and Economics, China. (liu_phd@163.com)

Workshop 04: The 4th Workshop on Scientific Data Analysis and Decision Making
Associate prof. Dengsheng Wu, Institutes of Science and Development, Chinese Academy of Sciences, China. (wds@casipm.ac.cn)
Associate prof. Yuanping Chen, Computer Network Information Center, Chinese Academy of Sciences, China. (ypchen@cashq.ac.cn)
Prof. Wenbin Jiao, Computer Network Information Center, Chinese Academy of Sciences, China. (wbjiao@cashq.ac.cn)
Prof. Jianping Li, Institutes of Science and Development, Chinese Academy of Sciences, China. (ljp@casipm.ac.cn)

Workshop 05: Workshop on Machine Learning and Intelligent Awareness
Xiaofei Zhou, IIE, Chinese Academy of Sciences, China. (zhouxiaofei@iie.ac.cn)
Jianlong Tan, IIE, Chinese Academy of Sciences, China. (tanjianlong@iie.ac.cn)
Jia Wu, Macquarie University, Australia. (jia.wu@mq.edu.au)
## ITQM 2018 Program AT A GLANCE

### Saturday, 20 October

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00-09:30</td>
<td>Opening Session</td>
<td>(PKI-158 /Host: Yong Shi)</td>
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<tr>
<td>09:30-09:45</td>
<td>Taking Photos</td>
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<tr>
<td>09:45-10:25</td>
<td>Keynote I</td>
<td>(PKI-158 /Speaker: Zongben Xu)</td>
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<tr>
<td></td>
<td>Chair: Daniel Berg</td>
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<tr>
<td>10:25-11:05</td>
<td>Keynote II</td>
<td>(PKI-158 /Speaker: Luiz F. Autran M. Gomes)</td>
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<tr>
<td></td>
<td>Chair: Po Lung Yu</td>
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<tr>
<td>11:05-11:45</td>
<td>Keynote III</td>
<td>(PKI-158 /Speaker: Ning Zhong)</td>
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<tr>
<td></td>
<td>Chair: Peter Wolcott</td>
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<tr>
<td>11:45-12:25</td>
<td>Keynote IV</td>
<td>(PKI-158 /Speaker: James Spohrer)</td>
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<tr>
<td></td>
<td>Chair: James M. Tien</td>
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<tr>
<td>12:25-13:00</td>
<td>Lunch Time</td>
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<tr>
<td>13:40-14:20</td>
<td>Keynote V</td>
<td>(PKI-158 /Speaker: Cheng-Few Lee)</td>
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<td>Chair: Wikil Kwak</td>
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<tr>
<td>14:20-15:00</td>
<td>Keynote VI</td>
<td>(PKI-158 /Speaker: Shu-Cherng Fang)</td>
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<td>Chair: Felisa Cordova</td>
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<tr>
<td>15:00-15:40</td>
<td>Keynote VII</td>
<td>(PKI-158 /Speaker: Po Lung Yu and Moussa Larbani)</td>
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<td></td>
<td>Chair: Zhengxin Chen</td>
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<tr>
<td>16:00-16:30</td>
<td>Bus to the Zoo</td>
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<td>16:30-18:00</td>
<td>Tour in the Zoo</td>
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<tr>
<td>18:00-20:00</td>
<td>Banquet and IAITQM Awards</td>
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</tbody>
</table>

### Sunday, 21 October

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>09:00-09:40</td>
<td>Keynote I</td>
<td>(PKI-158 /Speaker: Heeseok Lee)</td>
</tr>
<tr>
<td></td>
<td>Chair: Ning Zhong</td>
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</tr>
<tr>
<td>09:40-10:20</td>
<td>Keynote II</td>
<td>(PKI-158 /Speaker: James M. Tien)</td>
</tr>
<tr>
<td></td>
<td>Chair: Zongben Xu</td>
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<tr>
<td>10:20-11:00</td>
<td>Keynote III</td>
<td>(PKI-158 /Speaker: Fuad Aleskerov)</td>
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<td>Chair: Luiz F. Autran M. Gomes</td>
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<tr>
<td>11:10-12:10</td>
<td>Main track (PKI-155): Parallel Sessions. (PKI-157, PKI-160, PKI-161, PKI-164);</td>
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<tr>
<td>12:20-13:30</td>
<td>Lunch Time</td>
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<tr>
<td>13:40-15:40</td>
<td>Main track (PKI-155): Parallel Sessions. (PKI-157, PKI-160, PKI-161);</td>
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<tr>
<td>17:00-18:00</td>
<td>Dinner Time</td>
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Conference Information

Hours of Registration
• Saturday, 20 October 9:00-18:00
• Sunday, 21 October 9:00-18:00

Tour Information

Trip to Omaha's Henry Doorly Zoo
(Visit the Omaha's Henry Doorly Zoo)

Social Programs
• Banquet and IAITQM Awards
  Saturday, 20 October, 18:00-20:00

<table>
<thead>
<tr>
<th>Awards</th>
<th>Daniel Berg Award</th>
<th>Richard Price Award</th>
<th>Walter Scott Award</th>
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<tbody>
<tr>
<td>Presented by</td>
<td>Dr. Daniel Berg</td>
<td>Dr. Peter Wolcott</td>
<td>Mr. Walter Scott</td>
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<table>
<thead>
<tr>
<th>Awards</th>
<th>Siwei Cheng Award</th>
<th>Conference Award</th>
<th>Herbert Simon Award</th>
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<tbody>
<tr>
<td>Presented by</td>
<td>Dr. Cheng-few Lee</td>
<td>Dr. Felisa Cordova</td>
<td>Dr. James Tien</td>
</tr>
</tbody>
</table>

Instruction for Speaker
• Keynote speech: 40 minutes
• Oral presentation: 15-20 minutes
Keynote Speech

Keynote I (PKI-158)
Saturday, October 20
09:45-10:25

Model driven Deep Learning

Zongben Xu
Professor, Xi’an Jiaotong University, China

Chair: Daniel Berg

Abstract Deep learning (DL) has becoming a powerful, standard AI technology which helps to yield increasingly breakthroughs of learning system applications. As a representative of data driven approach, it faces however many challenges like contradictions between standardization and personalization, versatility and efficiency, the difficulties in design, anticipation and explanation for the results, and the serious dependence upon the amount and quality of training samples. On the other hand, the model-driven approach provides another learning paradigm that bases on the physical mechanism and prior modeling, which has the characteristics of determinacy and optimality while meets with obstacle of impossibility of precise modeling. In this talk we propose and formalize a data & model dual-driven learning approach, which define then the model driven deep learning (MDDL). The model driven deep learning start with construction of a Model Family (MF), which is a rough description of solution of the problem under consideration, followed then by the design of an Algorithm Family (AF) which is a collection of iterations whose limit give the solution of the model family. The Algorithm Family then unfolded into Deep Architecture (DA) with which learning can be performed. We provide examples to substantiate the effectiveness and superiority of the MDDL over others. We particularly show the following advantages of MDDL: It recedes the requirement for precise modeling in model-driven learning, provides the sound methodology for the DL network design, making it easy to incorporate into prior knowledge to make DL more efficient, designable, predictable and interpretable, and also significantly reduce the number of samples needed for DL training. Based on this study, we conclude that MDDL has great potential in the future DL research and applications.

Keynote II (PKI-158)
Saturday, October 20
10:25-11:05

Soft Computing Inspired by Prospect Theory

Luiz F. Autran M. Gomes
Professor, Management Science in the Ibmec School of Business and Economics

Chair: Po Lung Yu

Abstract The soft computing field encompasses areas such as neural networks, fuzzy logic, rough set modelling, evolutionary and nature-inspired computing, and machine learning. Its most striking benefits are usually related to problems for which no satisfactory solution could be found by directly using traditional paradigms founded upon rigorous and firmly established mathematical results. Through this talk a survey of models that have evolved from the classic multi-criteria TODIM method and that can be inserted in the broad domain of soft computing will be reviewed. TODIM was the first discrete multi-criteria method based on ideas from prospect theory. The algorithm for using the classical TODIM method as well as a number of extensions and a generalization of this method will be outlined. Extensions will cover formulations to deal with interval-data, hybrid, fuzzy, hesitant fuzzy, intuitionistic fuzzy, grey and neutrosophic input data, SMAA-TODIM modelling, etc. The talk will close with possible future developments.

Keynote III (PKI-158)
Saturday, October 20
11:05-11:45

Connecting Network and Brain with Big Data ——A Brain Informatics Based Systematic Approach

Ning Zhong
Professor, Beijing University of Technology, China

Chair: Peter Wolcott

Abstract Network, in particular Wisdom Web of Things (W2T) developed recently, provides a cyber-physical-social space for all human communications and activities, in which big data are used as a bridge to connect relevant aspects of humans, computers, and things. It is a trend to integrate brain big data and human behavior big data with knowledge graph in the cyber-physical-social space for realizing the harmonious symbiosis of humans, computers and things. In this talk, I
demonstrate a Brain Informatics based systematic approach to an integrated understanding of brain-machine intelligence in the connected world. I discuss research issues and challenges with respect to brain big data computing, including how to understand brain from neural microcircuits to macroscale intelligence systems, supported by connecting network and brain with big data; how to realize human-level collective intelligence as a big data sharing mind – a harmonized collectivity of consciousness on the W2T by developing brain inspired intelligent technologies to provide wisdom services.

**Keynote IV** (PKI-158)
Saturday, October 20
11:45-12:25

**Open Technology, Innovation, and Service System Evolution**

James Spohrer  
*Director, IBM Cognitive OpenTech Group, IBM Research – Almaden, San Jose, CA 95120*

Chair: James M. Tien

**Abstract**
AI is driving service system evolution, and open technology and innovation is playing a key role. AI is at the peak of the hype-cycle, so this talk begins by providing an outline and rationale for the twenty-year roadmap for solving AI. The roadmap makes use of open source AI leaderboards sequenced in order of complexity, with links to articles that survey experts on AI capability timelines. Smart phone apps are evolving into low-cost digital workers over the next two decades, providing a miniature expert service economy in the palm of your hand. As costs drop, there will be more parallel entrepreneurs, for sure, but not that many more. Businesses, universities, governments are still around, with lots of employees (but a higher percentage of executives). Because human nature changes slowly, things don't really change that much in terms of how hard we work to attain quality-of-life for our families, which is the core service system. In sum, no utopia, no dystopia, just good and bad things happening, and people muddling along.

This talk will present a service science perspective on how best to prepare for our future with open technologies artificial intelligence (#OpenTechAI). Service science can be thought of as the knowledge-base that allows entities to learn to play better and better win-win games over time (non-zero-sum games). Service-dominant logic has defined service as the application of knowledge for mutual benefits (value) co-creation. From a computer science perspective, artificial intelligence capabilities of entities can be viewed as the application of knowledge to perform a task as well as or better than a person. A timeline and roadmap will be presented for solving #OpenTechAI (i.e., performance at about human-level on first narrow and then general tasks) for most tasks in our modern economies that are based on human knowledge and technical expertise. Much of the progress towards solving artificial intelligence is on full display on GitHub (open source code projects) and on AI and Data Sciences leaderboard challenge websites (e.g., Kaggle). Preparing for our future with open artificial intelligence will force a deeper examination of the rights and responsibilities of entities, their interactions and the outcomes of those interactions. Apps on smartphones will gain capabilities (e.g., voice interfaces, conversation interfaces, episodic memories, etc.) and transform into low-cost digital workers as Moore’s Law continues.

**Keynote V** (PKI 158)
Saturday, October 20
13:40-14:20

**The Relationship between CEO Inside Debt Holdings and Firm Investment**

Cheng-Few Lee  
*Distinguished Professor of Finance at Rutgers Business School, Rutgers University*

Chair: Wikil Kwak

**Abstract**
We examine the effect of managerial inside debt holdings, in forms of pension benefits and deferred compensation, on firm investment. We find evidence of a significant positive incremental relationship between investment and CEO inside debt holdings, particularly among firms facing severe financing constraints. This is consistent with the hypothesis that the practice of including claims with debt-like characteristics in executive compensation help alleviate debtholders’ concern for asset substitution and expropriation, thereby enabling firms to achieve cheap external financing as a result of the reduced agency costs of debt to fund more investment. We also find evidence that inside debts disincentivize managers from investing into risky projects. But such a negative association is observed primarily between inside debt and the discretionary portion of firm investment with highly uncertain future outcomes.

**Keynote VI** (PKI 158)
Saturday, October 20
14:20-15:00
“Sub-one” Similarity Measure for Quantitative Management involving Human Behavior

Shu-Cherng Fang
Walter Clark Chair and Distinguished University Alumni Graduate Professor, Operations Research and Industrial & Systems Engineering, North Carolina State University, Raleigh, NC 27695, USA

Chair: Felisa Cordova

Abstract This talk introduces a new family of similarity measures for quantitative management of an on-line collaborative recommender system with fully or sparsely co-rated data. The mathematical properties of the new measure family are investigated for potential applications.

Keynote VII (PKI 158)
Saturday, October 20
15:00-15:40

A Habitual Domains Framework for Post-Data Mining Analysis and New Knowledge Creation for Better Decision Making

Po Lung Yu 1 and Moussa Larbani 2
1. Distinguished Professor (Emeritus) of University of Kansas (KU), Kansas
2. International Islamic University Malaysia (IIUM)

Chair: Zhengxin Chen

Abstract In the last decades, research on data mining has revolutionized the way large scale data are analysed and useful knowledge is extracted from. However, studies on second-order data mining, that is, how the extracted knowledge is used by organization’s decision makers (DMs) to formulate a course of actions, or solve problems or gain competitive advantage are scarce and lack a systematic approach. Indeed, the cognitive limitations and the psychological state of the DMs may lead to inefficient use of data mining results. In this paper, we present a general formal model for post-data mining analysis and new knowledge generation. The proposed model is formulated in the framework of Habitual Domains theory. The concept of wonderful solution is presented and ways on how to achieve it by expanding DMs Habitual Domains in post-data mining analysis are presented.

Keynote I (PKI 158)
Sunday, October 21
09:00-09:40

Technology Evolution in the Fourth Industrial Revolution Age: Potential for Disruptive Businesses

Heeseok Lee
Chair Professor of IT and Strategy, Korea Advanced Institute of Science and Technology, Seoul KOREA

Chair: Ning Zhong

Abstract Disruption denotes radical and deep changes. The first profound shift in human social development happened around 1770s. The human history is at another reflection point called singularity where emerging data technology along with artificial intelligence is diffusing much faster than before. We are at the beginning of the fourth industrial revolution. Isn’t it weird to find all the global top five largest companies are all tech ones already? Potential for disruptive businesses with technology is unlimited. We are already in the middle of big business revolution. This talk will illustrate how technology evolves and disrupt business models up to the current blockchain. It will outline the challenges and opportunities of the fourth industrial revolution and discuss its future potential for academia and practice.

Keynote II (PKI 158)
Sunday, October 21
09:40-10:20

Convergence to Real-Time Decision Making

James M. Tien
College of Engineering, University of Miami, Coral Gables, Florida 33146, USA

Chair: Zongben Xu

Abstract The advent of real-time decision making reflects the convergence of a range of digital technologies, including those concerned with the decision making process and the promulgation of artificial intelligence and other decision-related technologies. Central to real-time decision making is the concept of a servgood, which the author introduced in an earlier paper [Tien 2015]; it can be thought of as a physical
good or product enveloped by a services-oriented layer that makes the good smarter or more adaptable and customizable for a particular use. Adding another layer of physical sensors could then enhance its smartness and intelligence, especially if it were connected with other servgoods through the Internet of Things, mobile networks, global positioning links, and autonomous systems, all technologies that are considered herein. Such connected servgoods constitute a foundation for the advanced products of the future; they will display their growing smartness through enhanced real-time decision making. Indeed, autonomous systems can be considered to be the exemplar servgoods of tomorrow; it is about decision informatics and embraces the evolving technologies of sensing (i.e., Big Data), processing (i.e., real-time analytics), reacting (i.e., real-time decision making), and learning (i.e., deep neural networks). Since autonomous vehicles constitute a major quality-of-life disruption, it is also critical to consider its policy impact on privacy and security, regulations and standards, and liability and insurance. Finally, just as the Soviet Union initiated the space age on October 4, 1957, with the launch of Sputnik, the first man-made object to orbit the Earth, the United States of America has initiated an age of decision-focused automata—including autonomous vehicles—that can be considered to be the U. S. Sputnik of connected servgoods, with the full support of the U. S. government, the U. S. auto industry, the U. S. electronic industry, and the U. S. enterprise in higher education.

Keynote III (PKI 158)
Sunday, October 21
10:20-11:00

Problems in Education – Forecast of Enrollment, Heterogeneity and Efficiency of Universities

Fuad Aleskerov
National Research University Higher School of Economics and Institute of Control Sciences of Russian Academy of Sciences, Moscow, Russia

Chair: Luiz F. Autran M. Gomes

Abstract: We study three important problems in the analysis of higher education system. The first one is the forecast of the enrollment to universities. Here we propose a simple decision model based on the graduation exams scores and include also a reputational component of the profession derived from the social networks and mass media.

The second problem is how to measure heterogeneity of high education system. We propose a new model to do this based on the Unified State Examination Scores and evaluate the heterogeneity as a distance from an interval order obtained from real scores to some ideal interval order.

Finally, we propose a model how to measure an efficiency of universities based on several parameters such as scientific and educational performance as well as reputational component. The latter is obtained from the analysis of social networks and mass media. For this problem a modified version of the Data Envelopment Analysis is used.

All models have been tested using the data about Russian universities.

Detailed Schedule

Main Track (PKI 155)
Sun., 21 Oct. 2018
11:10-12:10
Chair: Yong Shi

Credit ratings patterns for BRICS industrial companies (ID 5)
Natalya Dyatchkova, Sergei Grishunin, Alexander Karminsky

Individual manipulability of majoritarian rules for one-dimensional preferences (ID 39)
Fuad Aleskerov, Daniel Karabekyan, Alexander Ivanov, Vyacheslav Yakuba

Finding Patterns of Stock Returns Based on Sequence Alignment (ID 45)
Yong Shi, Ye-ran Tang, Wen Long

Has “Intelligent Manufacturing” Promoted the Productivity of Manufacturing Sector? -- Evidence from China’s Listed Firms (ID 53)
Qu Yi, Shi Yong, Guo Kun, Zheng Yuanchun

Method for improving critical strategic and operational success factors in a port system (ID 77)
Claudia A. Durán, Felisa M. Córdova, Fredi Palominos

Research on the Correlation of Monthly Electricity Consumption in Different Industries: A Case Study of Bazhou County (ID 84)
Luhua Zhang, Zili Huang, Zhengze Li, Kun Guo

SS 01&03: Special Session
01&03 (PKI 157)
Sun., 21 Oct. 2018
11:10-12:10
Chair: Florin Gheorghe Filip, Vandana Ahuja

Second Order Intelligent Proportional-Integral Fuzzy Control of Twin Rotor Aerodynamic Systems (ID 68)
Raul-Cristian Roman, Radu-Emil Precup and Radu-Codrut David
Knowledge Management System in Service Companies (ID 70)
Felisa Cordova and Felipe Gutierrez

Using the Analytic Hierarchy Process (AHP) and fuzzy logic to evaluate the possibility of introducing single point incremental forming on industrial scale (ID 72)
Octavian Bologa, Radu-Eugen Breaz and Sever-Gabriel Racz

Challenges in the use of a support tool with automated review in student learning of programming courses (ID 74)
Fredi Palominos, Seomara Palominos, Claudia Andrea Duran San Martin, Felisa Cordova and Hernan Diaz

Research on the HPACA Algorithm to Solve Alternative Covering Location Model for Methane Sensors (ID 79)
Shuanghua Liang, Jing He, Ruhua Sun and Hui Zheng

The Value Co-creation Strategy for Telecommunication Carriers: Focusing on the Assessment of Potential Strategic Alliance Partners (ID 59)
Min Ho Ryu

Quality Business Schools education and the expectations of the corporate-A research agenda (ID 95)
Vandana Ahuja and Shriram Purankar

Influence Assessment in Multiplex Networks using Social Choice Rules (ID34)
Sergey Shvydun

A new influence based network for opinion propagation in social network based scenarios (ID57)
María Raquel Ureña Pérez, Francisco Chiclana and Enrique Herrera-Viedma

Industry 4.0: a perspective based on bibliometric analysis (ID66)
Manuel Jesus Cobo Martín, B. Jürgens, Víctor Herrero-Solana, M.A. Martínez and Enrique Herrera-Viedma

A Performance Comparison of Big Data Processing Platform Based on Parallel Clustering Algorithms (ID 23)
Mo Hai

Fogology: What is (not) Fog Computing? (ID 36)
Nitin Upadhyay

Fuzzy Multi-Criteria Framework for Measuring Spiritual Intelligence in a Data Driven Organization (ID37)
Shalini Upadhyay and Nitin Upadhyay

Time series of closed and open eyes EEG conditions reveal differential characteristics in the temporality of linear and non-linear analysis domain (ID 96)
Hernan Diaz, Fernando Maureira Cid and Felisa Cordova

Moving correlations and chaos in the brain during closed eyes basal conditions (ID 80)
Hernan Diaz, Fernando Maureira Cid, Gonzalo Flores, Ignacio Fuentes, Fernando García, Pablo Maertens, Sergio Muñoz, Felipe Parra and Felisa Cordova

Intra and inter-hemispheric correlations of the order/chaos balance of the brain activity during a motor imagination task (ID 76)
Hernan Diaz, Fernando Maureira Cid, Elizabeth Flores and Felisa Cordova

Requirements of AGV (Automated Guided Vehicle) for SMEs (Small and Medium-sized Enterprises) (ID 17)
Hee-Woon Cheong and Hwally Lee

Effects of Carbon Dioxide and Clouds on Temperature (ID 18)
Hyunsoo Lee and Hee-Woon Cheong

Concept Design of AGV (Automated Guided Vehicle) Based on Image Detection and Positioning (ID 19)
Hee-Woon Cheong and Hwally Lee

Investigating SaaS Providers' market success based on the Multivariate LGCM Approach (ID 41)
Seong Tak Oh and Sungbum Park

Prediction of Field Failure Rate using Data Mining in the Automotive Semiconductor (ID 88)
Gyungsik Yun and Sungbum Park
WS 04: Workshop 04 (PKI-164)  Sun., 21 Oct. 2018
Chair: Jianping Li  11:10-12:10

A slack-based DEA method for the performance evaluation and improvement of ultra-high voltage projects (ID 42)
Qian Zhao, Qianzhi Dai and Honghua Liang

Finding Fuzzy Close Frequent Itemsets from Databases (ID 43)
Haifeng Li

Examining the Inter-relationship between RMB Markets (ID 55)
Jiangze Du

Can Markov Switching Based Hybrid Models Improve the Performance of Forecasting Exchange Rates? (ID 56)
Shan Ye and Jiangze Du

Intellectual structure of geology research in China: A bibliometric analysis of the funded projects of NSFC (ID 73)
Xiaoli Lu and Yongliang Dong

Clustering research institutes based on disciplinary layout: An empirical study of Chinese Academy of Sciences (ID 91)
Yang Meng, Dengsheng Wu and Jianping Li

Main_Track (PKI-157)  Sun., 21 Oct. 2018
Chair: Yong Shi  13:40-15:40

Clinical Pathway Generation from Hospital Information System (ID 92)
Shusaku Tsuamoto, Tomohiro Kimura, Haruko Iwata, Shoji Hirano

Efficiency, Technology and Productivity Change of Higher Educational Institutions Directly under the Ministry of Education of China in 2007-2012 (ID 100)
Rong Yaohua, Li Muyu, Cheng Weihu, Chang Xianyu

Can Bank Debt Governance and Internal Governance Promote Enterprise Innovation? (ID 2)
Mansi Wang, Zongfang Zhou and Chaohui Xu

Exploring Soft Information Granules (ID 8)
Zhengxin Chen

Towards Extended Data Mining: An Examination of Technical Aspects (ID 9)
Lakshmi Prasanna Kaspaa, Venkata Naga Sai Sriram Akella, Zhengxin Chen and Yong Shi

FIRDoR - Fuzzy information retrieval for document recommendation (ID 12)
Rodrigo Costa Dos Santos and Maria Augusta Machado

Analyzing the Impact of Characteristics on Artificial Intelligence IQ Test: A Fuzzy Cognitive Map Approach (ID 16)
Fangyao Liu, Yuejin Zhang, Yong Shi, Zhengxin Chen and Xixi Feng

Empirical Analysis of Factors on Crowdfunding with Trust Theory (ID 22)
Haifeng Li

Automatic Chinese Multiple Choice Question Generation for Human Resource Performance Appraisal (ID 30)
Pei Quan, Yong Shi, Lingfeng Niu, Ying Liu and Tianlin Zhang

The impact of the change of trade pattern on China's energy industry—Based on the measurement of the upstreamness of production of the value chains (ID 44)
Xinran Wang, Xiaoxian Guo, Yan Song, Shasha Cao, Tian Wu, Xin Tian and Zhenping Li

High Performance Geological Disaster Recognition using Deep Learning (ID 90)
Ying Liu and Linzhi Wu

Crowd Data Visualization and Simulation (ID 105)
Leonel Toledo, Jorge Ivan Rivalcoba and Isaac Rudomin

SS 02&WS 02: Special Session 02&Workshop 02 (PKI-160)  Sun., 21 Oct. 2018
Chair: Xingsen Li, Jianping Li  13:40-15:40

Prediction of Financing Goal of Crowd funding Projects (ID 20)
Haifeng Li

Problem-oriented Industrial Design Innovation Method and Its Application (ID 65)
Jinzhen Dou, Haotian Li and Xingsen Li

Ziwei Cai and Chunyan Yang
Construction of "Trinity" three-dimensional classroom (ID 71)
Ning Wang and Aihong Li

Improve Professional managers' Innovation capability under the background of Internet (ID 81)
Shaofeng Cheng and Aihong Li

The application of Extenics in the flipped classroom of “Basic Principle of Marxism” (ID 83)
Yingying Zhou, Hequn Zhou, Bo Gao and Jilei Shi

Research on extension Evaluation and Prevention Strategy of Financial risk in Commercial Banks (ID 87)
Aihong Li and Yuming Cao

Business negotiation based on extenics (ID 89)
Xingsen Li, Fangyao Liu, Aihong Li and Libo Xu

Forecasting Exchange Rate Value at Risk using Deep Belief Network Ensemble based Approach (ID 6)
Kaijian He, Lei Ji, Geoffrey K.F. Tso, Bangzhu Zhu and Yingchao Zou

Country risk forecasting based on EMD and ELM: evidence from BRICS countries (ID 14)
Qianqian Feng, Jun Wang and Xiaolei Sun

A study on the dynamics of exchange rate volatility spillover network: Evidence from Central Asia (ID 15)
Xuping Ma, Jun Wang and Xiaolei Sun

Comprehensive identification of operational risk factors based on textual risk disclosures (ID 24)
Yinghui Wang, Guowen Li, Jianping Li and Xiaqian Zhu

User Behavior Auditing in Electric Management Information System based on Graph Clustering (ID 46)
Bingfeng Cui and Hongbin Zhu

Abnormal Detection of Electric Management System based on Spatial-temporal User Profile (ID 47)
Bingfeng Cui and Hongbin Zhu

FP-Growth based Regular Behaviors Auditing in Electric Management Information System (ID 48)
Jiye Wang and Zhihua Cheng

Data Security Framework for Electric Company Mobile Apps to Prevent Information Leakage (ID 49)
Fei Wu and Yuxiang Cai

Electric Company Management Information System based on Unified Message Center (ID 50)
Fei Wu and Yuxiang Cai

A Chinese Message Sensitive Words Filtering System based on DFA and Word2vec (ID 51)
Fei Wu and Yuxiang Cai

Frontier development of chips design and production (ID 93)
Li Yunyao, He Jing and Xie Zhijun

Abnormal Detection of Electric Security Data based on Scenario Modelling (ID 97)
Liang Liang

Electric Security Data Integration Framework based on Ontology Reasoning (ID 98)
Liang Liang

Glucose Screening Measurements and Noninvasive Glucose Monitor Methods (ID 104)
Hai Zheng, Jing He, Peng Li, Mengjiao Guo, Hui Jin, Jie Shen and Zhijun Xie

Online Robust Lagrangian Support Vector Machine against Adversarial Attack (ID 33)
Yue Ma, Yiwei He and Yingjie Tian

Research on Agricultural Environment Prediction Based on Deep Learning (ID 7)
Shuchang Chen, Bingchan Li, Jie Cao and Bo Mao

The Algorithm of Warehouse Vehicle Trajectory Intelligent Identification (ID 13)
Kangcheng Jin, Jie Cao and Dongqin Shen

Maintenance and Management of Marine Communication and Navigation Equipment Based on Virtual Reality (ID 40)
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SS 07&WS 01: Special Session 02&Workshop 02 (PKI-161)
Chair: Jing He

Research on Agricultural Environment Prediction Based on Deep Learning (ID 7)
Shuchang Chen, Bingchan Li, Jie Cao and Bo Mao

The Algorithm of Warehouse Vehicle Trajectory Intelligent Identification (ID 13)
Kangcheng Jin, Jie Cao and Dongqin Shen

Maintenance and Management of Marine Communication and Navigation Equipment Based on Virtual Reality (ID 40)
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Online Robust Lagrangian Support Vector Machine against Adversarial Attack (ID 33)
Yue Ma, Yiwei He and Yingjie Tian

WS 03&WS 05: Workshop 03&Workshop 05 (PKI-164)
Chair: Aihua Li
A New Factor in the Effect of Crowdfunding Projects (ID 21)
Haifeng Li

Pavement Crack Detection Using Sketch Token (ID 26)
Fan Meng and Aihua Li

Research on Characteristics and Value Analysis of Power Grid Data Asset (ID 29)
Wei Song, Yuejin Zhang, Jun Wang, Haifeng Li, Yajing Meng and Runtong Cheng

How the Media Coverage Affect the Chinese Publics’ Anticorruption Perceptions: Empirical Study Based on Interaction Effect Analysis (ID 35)
Meihong Zhu and Aihua Li

Research on Investment Decision Model of Distribution Grid Project Based on Transformer District (ID 54)
Luhua Zhang, Yuejin Zhang, Jun Wang, Xiao Wang, Haifeng Li and Runtong Cheng

Analysis of supplier’s mental-accounting and retailer’s fairness concerns behaviors in a two-channel supply chain model (ID 64)

Two Ways of Calculating VaR in Risk Management ——An Empirical Study Based on CSI 300 Index (ID 75)
Yunsi Li, Aihua Li and Zhidong Liu

Research on the Theory and Method of Grid Data Asset Management (ID 76)
Jun Wang, Yunsi Li, Wei Song and Aihua Li

How to Develop a Coordinated Long-term Care System (ID 107)
Hongmei Chen

Lightweight Convolutional Neural Network with SE Module for Image Super-Resolution (ID 25)
Yuwen Wu, Xiaofei Zhou, Ping Liu, Jianlong Tan and Li Guo

Structural Representations Learning of Social Influence in Heterogeneous Social Networks (ID 99)
Jianjun Wu, Ying Sha and Jianlong Tan

A New Discriminative Ordinal Regression Method (ID 103)
Wenhan Jiang
The inauguration meeting of IAITQM successfully took place in Omaha of United States on Sunday, June 3, 2012. More than 50 participants, coming from China, United States, Australia, South Korea, Japan, The Netherlands, Poland, Romania, Singapore, Spain, Lithuania, Turkey and other countries, attended the meeting.

IAITQM is glad to have Prof. Siwei Cheng (deceased), Mr. Walter Scott (Chairman of Level 3 Communications Inc., board member of Berkshire Hathaway Inc) and Prof. James Tien (University of Miami) to serve as the Honorary Chairmen. IAITQM attendees discussed and passed the IAITQM bylaws, and held the first election. Attendees elected Prof. Yong Shi as the President, Prof. Peter Wolcott as the Vice President for Conferences, Prof. WikilKwak as the Vice President for Finance, and Prof. Jianping Li as the Secretary. According to the bylaws, the attendees also elected five committees and their chairpersons, namely, the advisory committee, the awards committee, the executive committee, the conferences committee, and the publications committee.

IAITQM’s Vision:
The International Academy of Information Technology and Quantitative Management (The Academy) is a global community for educators, scholars, policy makers and professionals to promote innovation and excellence of information technology and quantitative management.

IAITQM’s Mission:
The Academy
(1). Develops and maintains a professional identity for all educators, scholars, policy makers and professionals in the fields of information technology and quantitative management around the world;
(2). Promotes the use of information technology in business and other areas to gain competitive capability;
(3). Promotes the development of quantitative models in support of identifying solutions that can improve business management and operations;
(4). Provides multiple interchange or communication venues, including conferences, journals, books, newsletters, etc. to enhance the exchanges of ideas, research findings and business practices related to information technology and quantitative management;
(5). Acts as a leading association of information technology and quantitative management to improve business efficiency and effectiveness and eventually the quality of life for all humans.
The IAITQM inauguration meeting, June 3, 2012, Omaha, NE, USA

The First International Conference on Information Technology and Quantitative Management, May 2013, Suzhou, China
The Second International Conference on Information technology and Quantitative Management, June 2014, Moscow, Russia

The Third International Conference on Information technology and Quantitative Management, July 2015, Rio, Brazil
The Fourth International Conference on Information technology and Quantitative Management, August 2016, Asan, Korea

The Fifth International Conference on Information technology and Quantitative Management, December 2017, New Delhi, India
About College of Information Science and Technology, University of Nebraska at Omaha

The College of Information Science and Technology (IS&T), University of Nebraska at Omaha (UNO), USA, established in 1996, is innovative and collaborative. It's dedicated to improving the world we live in and the ways we interact with technology.

The University of Nebraska Omaha offers the best available resources to help make this happen, including strong ties with industry and community leaders in metropolitan Omaha. The College of IS&T's dedicated faculty is a source of great pride for the college, both in the classroom and in the research lab.

UNO offers the best of a metropolitan research university. It's little wonder that the College of IS&T was awarded annually more than $6 million in grants. Research interests in IS&T are as diverse as the many disciplines involved in the college, and some faculty have achieved national recognition for their work.

Technology evolves, and the College of IS&T is continually evaluating the curriculum to ensure we stay ahead of the curve. Some fundamental courses always remain, while others reflect changing times. Learning opportunities extend beyond the classroom and into the work environment. More than 80 percent of IS&T students have internships in their field, and a majority of them are paid.

UNO graduate student. Nearly 80 percent of IS&T’s 2013 graduate students were employed full-time immediately after graduation or were continuing onto a Ph.D. program.

Omaha hosts a wide range of tourist attractions.

Peter Kiewit Institute

Arts and Sciences Hall
Omaha's Henry Doorly Zoo and Aquarium is a zoo in Omaha, Nebraska, located at 3701 South 10th Street. It can be accessed by I-80, very easily. It is accredited by the Association of Zoos and Aquariums and a member of the World Association of Zoos and Aquariums. Its mission is conservation, research, recreation, and education. In August 2014, TripAdvisor proclaimed Henry Doorly Zoo the "world's best zoo", leading San Diego Zoo and Loro Parque, based on an algorithmic assimilation of millions of reviews for 275 major zoos worldwide.

Omaha's Henry Doorly Zoo and Aquarium is nationally renowned for its leadership in animal conservation and research. Evolving from the public Riverview Park Zoo established in 1894, today the zoo includes several notable exhibits. It features the largest cat complex in North America; "Kingdoms of the Night" is the world's largest nocturnal exhibit and indoor swamp; the Lied Jungle is one of the world's largest indoor rainforests, and the "Desert Dome" is one of the world's largest indoor deserts, as well as the largest glazed geodesic dome in the world. The zoo is Nebraska's top paid attendance attraction and has welcomed more than 25 million visitors over the past 40 years.