The International Performance, Computing and Communications Conference is the premier IEEE conference presenting research in the performance of computer and communications systems. For more than three decades IPCCC has been a research forum for academic, industrial and government researchers.
Welcome to the 34th IEEE International Performance, Computing, and Communications Conference (IPCCC 2015) at Nanjing, China. IPCCC brings together researchers from academia, government and industry from all over the world, to exchange information about recent research outcomes in the performance of computer and communication systems. We are very happy to see a high quality conference program, including two keynote speeches, 81 papers in the main technical program and 16 posters.

First, we would like to thank our Honorary Chair, Prof. Jian Lu, for his continuous support of IPCCC. Without his backing we would not be able to bring this event to Nanjing. Next, we sincerely thank Program Co-Chairs, Prof. Kui Ren and Prof. Tommaso Melodia, and all Technical Program Committee members for their hard work in selecting papers from the large numbers of submissions. Also, we thank Industrial Track Chair, Dr. Ye Wu, for organizing an excellent, unprecedented Industrial Track. In addition, we thank EDAS Chair Prof. Jiqing Liu, Poster Chair Prof. Yongbin Zhou, Publications Chairs Prof. Liehuang Zhu and Prof. Tingting Chen, Publicity Chair Prof. Qian Wang, Web Chair Neil Nelson, Financial Chair Nasr Ullah, Registration Chair Jack Chen, Local Arrangement Chair Prof. Panlong Yang and Local Arrangement Associate Chairs Prof. Shaopeng Guan and Dr. Kun Wang. Finally and maybe most importantly, we are truly grateful to Baidu Inc., for its generous support.

Dear friends, colleagues, ladies and gentlemen, we thank all of you for attending IPCCC 2015. We hope you all have a wonderful time in Nanjing.

> Guoliang Xue and Sheng Zhong – IPCCC 2015 General Chairs

It is our great pleasure to welcome you to Nanjing, China and to introduce the Proceedings of the 34th edition of the IEEE International Performance Computing and Communications Conference (IPCCC).

The conference provides a forum to exchange new ideas and results among researchers, developers and practitioners working in all aspects of performance evaluation of computer and communication systems. This year we received a record number of 298 submissions (up 50 percent from previous years) from 32 countries and regions. These are (in descending order of the number of registered authors from that country/region): P.R. China, USA, Korea, India, Canada, Germany, Sri Lanka, Taiwan, Australia, Tunisia, France, Hong Kong, United Kingdom, New Zealand, Japan, Egypt, Brazil, Algeria, Russia, Switzerland, Israel, Finland, Portugal, Palestine, Saudi Arabia, Ecuador, Malaysia, Ireland, Vietnam, UAE, Cameroon, Indonesia, Bangladesh and Thailand.

The technical program committee accepted 81 submissions for oral presentation at the conference, representing an acceptance rate of 27 percent. All manuscripts submitted for the conference went through a thorough review process by our technical program committee members and external reviewers. We were only able to accept the papers that were highly ranked and received broad support from the reviewers.

The final technical program contains 20 technical sessions and one poster session. Additionally, the conference includes keynote addresses by two distinguished speakers, Professor Elisa Bertino from Purdue University and Professor Mauro Barni from the University of Siena.

We are deeply indebted to all the members of the Technical Program Committee for their hard work and their tremendous efforts reviewing and discussing each paper. We would also like to thank the external reviewers for volunteering their time to review the submissions. In addition, we are also grateful to the Honorary Chair Jian Lu, to the General Chairs of the conference, Prof. Guoliang Xue and Prof. Sheng Zhong for their leadership, to the Industrial Track Chair Ye Wu, to and to Financial Chair Nasr Ullah, Publications Chairs Liehuang Zhu and Tingting Chen, Publicity Chair Qian Wang, Poster Chair Yongbin Zhou, Web Chair Neil Nelson, and Registration Chair Jack Chen, as well as Local Arrangements Chairs Panlong Yang, Shaopeng Guan and Dr. Kun Wang for their hard work in making IPCCC 2015 a successful event.

Last but not least, we would like to thank all the authors for presenting their work at the conference, it would not have been possible without their hard work and intellectual curiosity.

> Kui Ren and Tommaso Melodia – IPCCC 2015 Technical Program Chairs
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2015 IPCC Schedule Day One – Monday, December 14

Day One Conference Coordinator: Professor Panlong Yang

> 08:00 – Opening Remarks (Chair: Sheng Zhong)

> 08:15-09:15 – Keynote I: Elisa Bertino, Purdue University – Big Data Security & Privacy

(Chair: Kui Ren)

> Sessions 1.1 (Room: Jiang Hai Yuan) & 1.2 (Room: Su Xi) – 09:15-10:35

Session 1.1 (Chair: Bo Sheng) Fundamental Theory & Algorithms
An Enhanced Algorithm Based On Paths Algebra Strategy To Solve the VNE Problem:
Carhina Wang (University of Shandong); Fangjin Zhi (Shandong Dong University); Qiya Zhang (Shandong University).
A Novel Algorithm for Pattern Matching with Back References: Li Yang (Baidu), Inc.; Vinod Ganapathy (Rutgers University); Pratyusha K Manadatha (Hewlett Packard); Ye Wu (Baidu, Inc.).
Lifetime Maximization in Rechargeable Wireless Sensor Networks with Charging Interference: Yi Qu and Ke Xu (Tsinghua University); Haiyajang Wang (University of Minnesota at Duluth); Dan Wang (The Hong Kong Polytechnic University); Bo Wu (Tsinghua University).
Privacy-preserving Min and k-Min Computations with Fully Homomorphic Encryption: Bingjing Jiang and Yuan Zhang (Nanjing University)

Session 1.2 (Chair: Panlong Yang) Big Data Processing & Analytics
SpeedStream: A Real-Time Stream Data Processing Platform in The Cloud: Li Zhao (Institute of Information Engineering, Chinese Academy of Sciences); Zhanhui Chuan (Institute of Information Engineering, Chinese Academy of Sciences); Xu Kefu (Institute of Information Engineering, Chinese Academy of Sciences).
Efficient TV White Space Database Construction via Spectrum Sensing and Spatial Inference: Mengyun Tang, Ze Zheng, Guoru Ding and Xue Zhen (PLA University of Science and Technology).
Mining Friendships Through Spatial-temporal Features in Mobile Social Networks: Jianwei Niu (Beihang University); Danning Wang (Beihang University); Jie Lu (Beihang University).
Parallel and Distributed Normalization of Security Events for Instant Attack Analysis: David Jaeger (Hasso Plattner Institute); Andrey Sapegin (Hasso Plattner Institute, University of Potsdam); Martin Usatish (Hasso Plattner Institute); Feng Cheng (University of Potsdam); Christoph Meinel (Hasso Plattner Institute, University of Potsdam).

> Sessions 1.3 (Room: Jiang Hai Yuan) & 1.4 (Room: Su Xi) – 10:40-12:00

Session 1.3 (Chair: Fan Wu) Network Protocols
Energy Cost Minimization via Intelligent Temporal and Spatial Resource Allocation in Green Heterogeneous Cellular Networks: Qing Yang and Bang Wang (Hua- zhou University of Science and Technology).
Comparative Analysis of Big Data Transfer Protocols in an International High-Speed Network: Se-young Yu, Nevil Brownlee and Aniket Mahanti (University of Auckland).
Controller Placement for Multi-States Software-Defined Networks: Guo Sheng, Shu Yang and Qi Li (Tsinghua University); Yong Jiang (Graduate School at Shenzhen, Tsinghua University).
On Secure Shared Key Establishment for Mobile Devices using Contextual Information: Ala Ataweel, Rudi Stoliero and Subhajit Mandal (Texas A&M University).

Session 1.4 (Chair: Keysheng Wu) Memory & Disk Storage Systems
Integrated Caching and Tiering According to Use and QoS Requirements: Mark Abashkin (Ben-Gurion University of the Negev); Assaf Natanzon (EMC Corp. and Ben-Gurion University of the Negev-Ben-Gurion University).
PASSI: A Parallel, Reliable and Scalable Storage Software Infrastructure for Active Storage System and I/O Environments: Song Fu (University of North Texas); Hsing-hsien Chen (Los Alamos National Lab).
P-LCRA: Popularity-driven Cache Location and Searching Scheme in Content Centric Networking: Yuyue Xi (Beijing Foreign Studies University); Shuai Ma (University of Southern California); Yang Li (Institute of Information Engineering, Chinese Academy of Sciences); Fu Chen (Beijing Foreign Studies University & CS); Song Ci (University of Nebraska-Lincoln).
WalloC: An Efficient Wear-Aware Allocator for Non-Volatile Main Memory: Song-ping Yu, Nong Xiao, Mingzheng Xiong, Xingfang Li and Ling Sun (National University of Defense Technology); Zhiping Cai (University of Florida & National University of Defense Technology); Wei Chen (National University of Defense Technology).

> Lunch (Room 2F) – 12:05-13:15

Session 1.5 (Chair: Jiang Hai Yuan) & 1.6 (Room: Su Xi) – 13:15-15:00

Session 1.5 (Chair: Jehan-François Pâris) Data Centers & Cloud Computing
Efficient Switch-Assisted Congestion Control for Data Centers: an Implementation and Evaluation: Ahmed M. Abdelmoniem and Ibrahim Bensou (The Hong Kong University of Science and Technology).
SDN-based TCP Congestion Control in Data Center Networks: Yifei Lu and Shuhong Zhu (Nanjing University of Science and Technology).
Bandwidth Guaranteed Virtual Network Function Placement and Scaling in Datacenter Networks: Fengxian Wang, Ruilin Ling, Jing Zhu and Dan Li (Tsinghua University).
Dynamic Flow Consolidation for Energy Savings in Green DCNs: Chao Zhu (Tsinghua University); Yu Xiao (Aalto University); Yung Cui (Tsinghua University); Zhenjie He, Xinyu Yang and Jie Lin (Xi'an Jiaotong University); Linqiang Ge (Computer and Information Sciences, Towson University).
Towards Shorter Task Completion Time in Datacenter Networks: Yuchao Zhang, Mengyun Tang, Ze Zheng, Guoru Ding and Xue Zhen (PLA University of Science and Technology).

Session 1.6 (Chair: Fan Wu) Parallel & Distributed Systems
OMO: Optimize MapReduce Overlap with a Good Start (Reduce) and a Good Finish (Map): Jiyun Wang (University of Massachusetts Boston); Yi Yao (Northeastern University); Yang Mao and Bo Sheng (University of Massachusetts Boston); Ningfang Mi (Northeastern University).
Towards Adaptive Elastic Distributed Software Defined Networking: Yanyu Chen (Tsinghua University); Qing Li (Graduate School at Shenzhen, Tsinghua University); Yuan Yang and Qi Li (Tsinghua University); Yong Jiang and Xi Xiao (Graduate School at Shenzhen, Tsinghua University).
Pirogue, a Lighter Dynamic Version of the Raft Distributed Consensus Algorithm: Julien Francois Paris (University of Houston); Darrell Long (University of California at Santa Cruz).
SkipMon: A Locality-Aware Collaborative Intrusion Detection System: Emmanuel Vassalos, Matthias Kruegel and Carlos Garcia Cerdan (Technische Universität Darmstadt); Max Muehlhaeuser (Technical University Darmstadt); Mathias Fischer (International Computer Science Institute).
Decentralized Multi-Confideration Coordinator for Wireless Rechargeable Sensor Networks: Le Mo and Pengcheng You (Zhejiang University); Xianghui Cao (Southeast University); Jiyun Chen (Zhejiang University); Yiqiong Song (LORA-University of Lorraine).

> Break 15:00-15:20

> Sessions 1.7 (Room: Jiang Hai Yuan) & 1.8 (Room: Su Xi) – 15:25-17:00

Session 1.7 (Chair: Jingyu Hua) Network Protocols
Detect and Analyze Large-scale BGP Events by Bi-clustering: Shujuan Zhang (Xi’an Jiaotong University); Wei Yu (Touxiang University); Xinxin Yang (Xian Jiaotong University); Xiaofei Yuan (University of Southern California).
Building Mobile Ad-Hoc Networks With Long-range Radios: Ying Mao, Jiaxin Wang and Bo Sheng (University of Massachusetts Boston); Fan Wu (Shanghai Jiao Tong University).
Scalable Name-Based Inter-Domain Routing for Information-Centric Networks: Sangmun Kim and Zhenhai Duan (Florida State University); Fernando Sanchez (University of Southern California).
RAPIT: RTT-Aware Pending Interest Table for Content Centric Networking: Yate Liu, Qing Li and Nian Jiang (Graduate School at Shenzhen, Tsinghua University); Shuqiao Xia (Tsinghua University).
Traffic-Aware Networking for Video Streaming Service using SDN: Calvin Hui, Yujia Chen and Li-Chun Wang (National Chiao Tung University).

Session 1.8 (Chair: Wei Yu) Cyber Physical Systems
On Stochastic Optimal Bidding Strategies for Microgrids: Qingyu Yang and Dou An (Xian Jiaotong University); Wei Yu (Touxiang University); Xinmin Yang (Xian Jiaotong University); Xinwen Fu (University of Massachusetts Lowell).
Sensor Placement based on Delaunay Triangulation for Complete Confident Information Coverage in An Area with Obstacles: Li Dai and Bang Wang (Huazhong University of Science and Technology).
Defending against Energy Dispatching Data Integrity Attacks in Smart Grid: Xiaofei Yuan, Ying Yang and Jie Lin (Xian Jiaotong University); Linqiang Ge (Computer and Information Sciences, Towson University); Wei Yu (Touxiang University); Qingyu Yang (Xian Jiaotong University).
Power-free Structural Health Monitoring via Compressive Sensing: Limin Zhao, Dengan Li and Tian Cao (Tianjin University of Technology).
Distributed Load Scheduling in Smart Community With Capacity Constrained Local Power Supplier: Nuo Yu, Lan Mu and Tuting Miao (Harbin Institute of Technology Shenzhen Graduate School); Hejiao Huang (Harbin Institute of Technology); Hongwei Du (Harbin Institute of Technology Shenzhen Graduate School); Xiaohua Jia (University of Hong Kong).

> Dinner (Room 2F) – 18:00
Session 2.2 (Chair: Yuan Zhang) Wireless Communication & Networks
Charging Your Smartphones on Public Commuters via Wireless Energy Transfer: Wenzheng Xu (Sichuan University & Australian National University); Weifa Liang (The Australian National University); Su Hu and Xiaola Lin (Sun Yat-Sen University); Jian Peng (Sichuan University)
Efficient RSS Measurement in Wireless Networks based on Compressive Sensing: Yanchao Zhao (Nanjing University of Aeronautics and Astronautics & Nanjing University); Wenzhong Li (Nanjing University); Jie Wu (Temple University); Sanglu Lu (Nanjing University)
On the Coexistence of 802.11 and 802.15.4 Networks with Delay Constraints: Wei Zhang, Mahima Agumbe Suresh, Yuan Zhou, Raghavan Veera and Radu Stoleriu (Texas A&M University)
Stochastic Duty Cycling for Heterogeneous Energy Harvesting Networks: Jianhui Zhang (Nanjingtian Jinan University); Mengmeng Wang (Hangzhou Dianz University); Zhi Li (Hangzhou Dianzi University)
Traffic Condition Estimation Using Vehicular Crowdsensing Data: Lu Shao (Tongji University); Cheng Wang (Tongji University, Shanghai); Zongli Li and Changjun Jiang (Tongji University)

Session 2.3 (Room: Su Xiu) & 2.4 (Room: Yun Jin) – 11:00-12:00

Session 2.4 (Chair: Wei Tong) Mobile Ad Hoc, Sensor & Mesh Networks
R-PMD: Robust Passive Motion Detection Using PHY Information with MIMO: Hai Zhu, Fu Xiao, Lijuan Sun and Xiaohui Xie (Nanjing University of Posts and Telecommunications); Panlong Yang (Institute of Communication Engineering, PLAUST); Ruchuan Wang (Nanjing University of Posts and Telecommunications)
A Goodput Distribution Model For IEEE 802.11 Wireless Mesh Networks: Ying Qu, Bryan Ng and Winston K.G. Seah (Victoria University of Wellington)
New Tight Upper Bounds on the Capacity for General Deterministic Dissemination in Wireless Ad Hoc Networks: Cheng Wang (Tongji University, Shanghai); Jieren Zhou (Tongji University); Tianci Liu (Tsinghua University); Lu Shao (Tongji University); Huiya Yan (University of Wisconsin-La Crosse)

Session 2.5 (Chair: Yun Jin) – 13:20-15:00

Session 2.5 (Chair: Yongzhen Zhou) Wireless Communication & Networks II
On Balancing the Energy Consumption of Routing Protocols for Opportunistic Social Networks: Chen Yang and Radu Stoleriu (Texas A&M University)
Adaptive Partial Frequency Reuse in LTE-Advanced Relay Networks: Chen Sun (Nanchang Hangkong University); Xiaojun Wang (Dublin City University); Zhiyong Yang (Nanchang Hangkong University)
Optimum Reference Node Deployment for Indoor Localization Based on the Average Cramer-Rao Bound Minimization: Fei Long (Western University); Aydin Behnad (The University of Western Ontario); Xiaoxue Zhang (Western University)
Network Performance Isolation Scheme for QoE in a Mobile Device: Hui Zhao, Qinghua Zheng, Weizhan Zhang, Yuxuan Chen and Yunhui Huang (Xian Jiaotong University)
Minimizing Response Latency via Efficient Virtual Machine Placement in Cloud Systems: Hui Deng, Liusheng Huang, Chenkai Yang, Hongli Xu and Bing Leng (University of Science and Technology of China)
A Customizable MapReduce Framework for Complex Data-Intensive Workflows on GPUs: Zhi Qiao and Shuwen Liang (University of North Texas); Hai Jiang (Arkansas State University); Song Fu (University of North Texas)

Session 2.6 (Room: Su Xiu) – 15:20-17:00

Session 2.6 (Chair: Hong Zhou) Performance Tools & Evaluation
PATHA: Performance Analysis Tool for HPC Applications: Wucherl Yoo (Lawrence Berkeley National Laboratory); Michelle Koo (University of California, Berkeley); Yi Cao (California Institute of Technology); Alex Sm (Lawrence Berkeley National Laboratory); Peter Nugent (LBNL & UC Berkeley); Kesheng Wu (Lawrence Berkeley National Laboratory)
Energy-Efficient, Delay-aware Packet Scheduling in High-Speed Networks: Quan Yu and Tieb Znati (University of Pittsburgh); Wang Yang (Southeast University)
Spatial-Temporal Tensor Completion for Imputing Missing Internet Traffic Data: Zhou Huibin and Dafang Zhang (Hunan University); Kun Xie and Yuxiang Chen (State University of New York at Stony Brook)
ATLAS: An Adaptive Failure-Aware Scheduler for Hadoop: Mbarka Soucha (Concordia University); Foutsie Khomh (École Polytechnique, Montreal); Sofiene Tahar (Concordia University)
ScalaSEM: A Testing Framework for Large Scale Datacenter SDN Design: Nan Zhu and Wenbo He (McGill University)

> Baidu Inc. Reception (Chair: Ye Wu) & Poster Session (Chair: Yongbin Zhou) – Room 2F – 18:00

*Poster Session Papers listed on Page 6
Abstract:

Security-oriented applications of signal processing have received increasing attention in the last few years. Digital watermarking, steganography and steganalysis, multimedia forensics, biometric security, are just a few examples of such an interest. In many cases though, researchers have failed to recognize the single most unique feature behind any security-oriented application, i.e., the presence of one or more adversaries aiming at making the system fail. One of the most evident consequences is that security requirements are misunderstood, e.g., quite often security is exchanged for robustness. Even when the need to cope with the actions of a malevolent adversary is taken into account, the proposed solutions are often ad-hoc, failing to provide a unifying view of the challenges that such scenarios pose from a signal processing perspective. Times are ripe to go beyond this limited view and lay the basis for a general theory that takes into account the impact that the presence of an adversary has on the design of effective signal processing tools, i.e., a theory of adversarial signal processing.

It is the aim of this talk to:

i) motivate the need for the development of a general theory of adversarial signal processing;

ii) propose a unifying framework based on game-theory;

iii) present some recent results regarding adversarial hypothesis testing.

Biography

Mauro Barni graduated in electronic engineering at the University of Florence in 1991. He received a Ph.D. in informatics and telecommunications in October 1995. He has carried out his research activity for over 20 years, first at the Department of Electronics and Telecommunication of the University of Florence, then at the Department of Information Engineering of the University of Siena. During the last decade he has been studying the application of image processing techniques to copyright protection and authentication of multimedia, and the possibility of processing signals that have been previously encrypted without decrypting them. Lately he has been working on theoretical and practical aspects of adversarial signal processing.

He is author/co-author of almost 300 papers published in international journals and conference proceedings, and holds four patents in the field of digital watermarking and image authentication. He is co-author of the book *Watermarking Systems Engineering: Enabling Digital Assets Security and other Applications*, published by Dekker Inc. in February 2004. He participated in several National and European research projects on diverse topics, including computer vision, multimedia signal processing, remote sensing, digital watermarking, IPR protection. He was the funding editor of the EURASIP Journal on Information Security. He is the Editor in Chief of the IEEE Transactions on Information Forensics and Security for the years 2015-2017. He has been serving as associate editor of many journals including several IEEE Transactions. Prof. Barni has been the chairman of the IEEE Information Forensic and Security Technical Committee (IFS-TC) from 2010 to 2011. He is a fellow member of the IEEE and a member of EURASIP. He was appointed DL of the IEEE SPS for the years 2013-2014. He was also the technical program chair of ICASSP 2014.
Preliminary Call for Papers and Participation for December 2016

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- Multi- and Single-Core Processor Architecture
- Network Data Mining
- Network Information Assurance and Security

- Network Protocols
- Online Social Network Analysis
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- Ubiquitous Computing
- Wireless Communication and Networks
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Submission instructions and procedures are available at the IPCCC website at: www.ipccc.org. All papers will be reviewed by the Program Committee. They will be judged with respect to their quality, originality, and relevance. Accepted papers will be published in the conference proceedings, conditional upon the author’s advance registration. Awards will be given for the best paper. Questions regarding the policies and procedures can be found at the website.

In addition, proposals for panel sessions and workshops are welcome. Please visit www.ipccc.org for details.