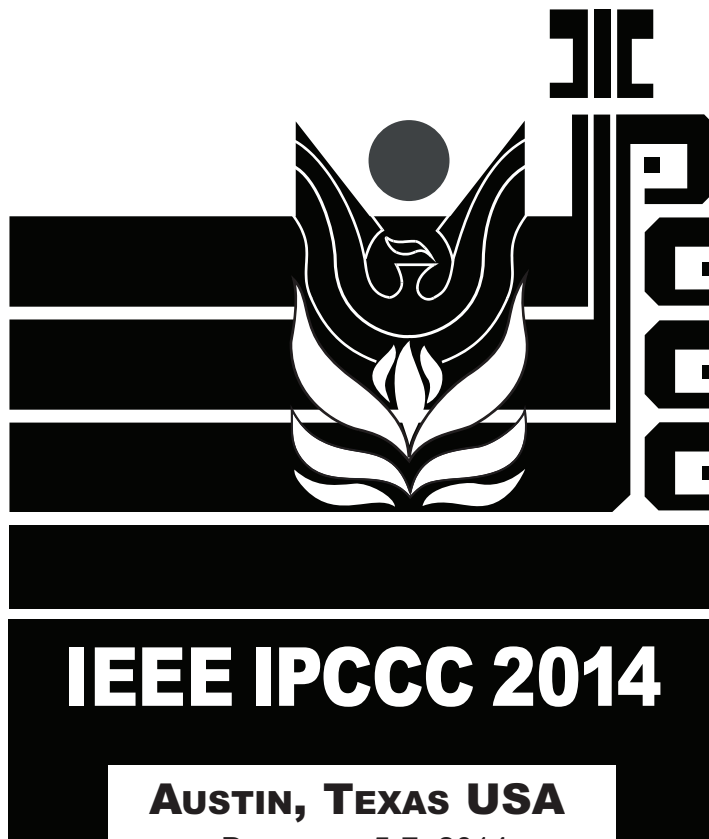


33RD

IEEE INTERNATIONAL PERFORMANCE COMPUTING AND COMMUNICATIONS CONFERENCE PROGRAM GUIDE

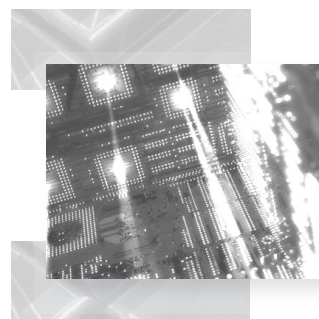
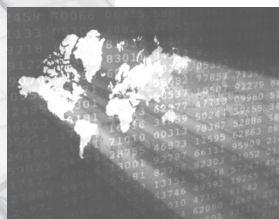


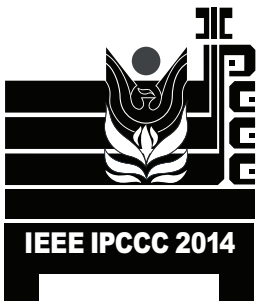
AUSTIN, TEXAS USA

DECEMBER 5-7, 2014

THE INTERNATIONAL PERFORMANCE, COMPUTING, AND COMMUNICATIONS CONFERENCE IS THE PREMIER IEEE CONFERENCE PRESENTING RESEARCH IN THE PERFORMANCE OF COMPUTER AND COMMUNICATION SYSTEMS.

FOR MORE THAN THREE DECADES, IPCCC HAS BEEN A RESEARCH FORUM FOR ACADEMIC, INDUSTRIAL AND GOVERNMENT RESEARCHERS.





MESSAGE FROM THE IPCCC 2014 GENERAL CHAIR

It is my great pleasure to welcome you to the 33rd IEEE International Performance, Computing and Communications Conference (IPCCC 2014) on December 5-7, 2014 at the Renaissance Austin Hotel, Austin, Texas, USA. For over three decades, IPCCC has been a premier venue of the IEEE Computer Society for researchers from academia, government and industry to present, explore and discuss the latest research advances in the performance of computer and communication systems.

We are very pleased to be able to continue the IPCCC tradition of excellence with a high-quality technical program consisting of two plenary keynote speeches, 63 technical papers and 32 research posters. I wish to thank all the contributors to the high-quality program and success of IPCCC 2014. In particular, I thank Program Co-Chairs Mea Wang and Weichao Wang and all the members of the Technical Program Committee for their tremendous effort and hard work in paper selection. This year we have a record high number of submissions, thus the whole review and selection process was a very challenging task. In addition, I also thank General Vice-Chair Zhipeng Cai, Publications Chair Peixiang Liu, Publicity Chairs Wenjia Li, Jorge E. Pezoa, Fan Li and Nils Aschenbruck, Poster Chair Linwei Niu, Workshop Chair Kemal Akkaya, Web Chair Neil Nelson, Financial Chair Nasr Ullah, and Registration Chair Jack Chen. It is truly a privilege to work with such a marvelous group of dedicated professionals. Finally, we are grateful to the Technical Committee on Simulations (TCSIM), Technical Committee on Computer Communications (TCCC), and the IEEE Computer Society for their continuing sponsorship and support of this conference.

YU WANG
GENERAL CHAIR, IPCCC 2014

MESSAGE FROM THE TECHNICAL PROGRAM CHAIRS

It is our great pleasure to present you the proceedings of the 33rd edition of the IEEE International Performance Computing and Communications Conference, held December 5th - 7th, 2014 in Austin, Texas, United States. The conference provides a forum for the exchange of ideas and results among researchers, developers and practitioners working in all aspects of performance of computer and communication systems.

This year we received 199 submissions (a record high) from 40 countries and regions: Algeria, Aruba, Australia, Bosnia and Herzegovina, Brazil, Canada, Colombia, Croatia, Czech Republic, Egypt, France, Germany, Greece, India, Iran, Japan, Jordan, Korea, Lebanon, Malaysia, Mexico, New Zealand, Norway, P.R. China, Pakistan, Portugal, Saudi Arabia, Singapore, South Africa, Sweden, Switzerland, Taiwan, Thailand, Trinidad and Tobago, Tunisia, Turkey, UAE, United Kingdom, Uruguay and the USA. The technical program committee accepted 63 submissions for oral presentation at the conference, representing an acceptance rate of 31.65 per cent. Most of the submissions received three peer reviews from 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 included 12 technical sessions and one poster session. Additionally, the conference includes

keynote addresses by two distinguished speakers; Professor Nick Duffield from Texas A&M University and Professor Jie Wu from Temple University.

We are deeply indebted to all the members of the technical program committee for their hard work and their tremendous efforts of reviewing and discussing each paper. We would also like to thank the external reviewers for volunteering their time to review the paper.

In addition, we are also grateful to the General Chair and General Vice-Chair of the conference, Yu Wang and Zhipeng Cai for their leadership, and to Financial Chair Nasr Ullah, Publications Chair Peixiang Liu, Publicity Chairs Wenjia Li, Jorge E. Pezoa, Fan Li, and Nils Aschenbruck, Poster Chair Linwei Niu, Workshop Chair Kemal Akkaya, Web Chair Neil Nelson, and Registration Chair Jack Chen, for their hard work in making IPCCC 2014 a successful event.

Last but not least we would like to thank all the authors for presenting their works at the conference. Also, we hope that the papers that were not selected for presentation will benefit from the reviews and eventually will be published in another venue.

WEICHAO WANG AND MEA WANG
TECHNICAL PROGRAM CHAIRS,
IEEE IPCCC 2014

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2014 IPCCC SCHEDULE DAY ONE - FRIDAY, DECEMBER 5

REGISTRATION AND WELCOME MESSAGE: (7:45 A.M. AT BRAZOS FOYER/BRAZOS)
DR. YU WANG, UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE, USA
TCP CHAIR REPORT: DR. MEA WANG AND DR. WEICHAO WANG

SESSION 1 (BRAZOS): 8:00 - 10:00 A.M.

SESSION 1: INTERNET

CHAIR: LIJUAN CAO, JOHNSON C. SMITH UNIVERSITY, USA

1.1: Prediction and Correction of Traffic Matrix in an IP Backbone Network

Wei Liu and Ao Hong (Department of Electronics and Information Engineering, Huazhong University of Science and Technology, Wuhan, China); Liang Ou (Guangdong Research Institute of China Telecom, Guangzhou, China); Wenchao Ding, Ge Zhang (Department of Electronics and Information Engineering, Huazhong University of Science and Technology, Wuhan, China)

1.2: Measuring Path Divergence in the Internet

Nazim U. Ahmed, Kamil Sarac (Department of Computer Science, University of Texas at Dallas, USA)

1.3: A Flexible and Scalable High-Performance OpenFlow Switch on Heterogeneous SoC Platforms

Shijie Zhou (Ming Hsieh Department of Electrical Engineering, University of Southern California, USA); Weirong Jiang (Xilinx Research Labs, USA); Viktor K. Prasanna (Ming Hsieh Department of Electrical Engineering, University of Southern California, USA)

1.4: Design and Analysis of Fault Tolerance Mechanism for Sparrow

Wenzhuo Li, Chuang Lin (Department of Computer Science and Technology, Tsinghua National Laboratory for Information Science and Technology, Tsinghua University, Beijing, China)

1.5: Achieving Transparent Coexistence in a Multi-hop Secondary Network Through Distributed Computation

Xu Yuan, Yi Shi, Y. Thomas Hou, Wenjing Lou, Scott F Midkiff (Virginia Polytechnic Institute and State University, USA); Sastry Kompella (U.S. Naval Research Laboratory, Washington DC, USA)

BREAK: 10:00 - 10:15 A.M.

SESSION 2 (BRAZOS): 10:15 A.M. - 12:15 P.M.

SESSION 2: WIRELESS NETWORKS

CHAIR: NILS ASCHENBRUCK, UNIVERSITY OF OSNABRUECK, GERMANY

2.1: Effects of Quality of Service Schemes on the capacity and dimensioning of LTE Networks

Fatima Furqan, Doan B Hoang (INEXT Centre for Innovation in IT Services and Applications, University of Technology, Sydney, Australia); Iain B. Collings (ICT Centre, CSIRO, Australia)

2.2: Smoothly Truncated Levy Walks: Toward a Realistic Mobility Model

Lijuan Cao (Johnson C. Smith University, Charlotte, NC, USA); Michael Grabchak (University of North Carolina at Charlotte, USA)

2.3 Network Agile Preference-Based Prefetching for Mobile Devices

JunZe Han (Department of Computer Science, Illinois Institute of Technology); Xiang-Yang Li (Illinois Institute of Technology and School of Software and

TNLIST, Tsinghua University); Taeho Jung (Department of Computer Science, Illinois Institute of Technology, Chicago, USA); Jumin Zhao (College of Information Engineering, Taiyuan University of Technology, China); Zenghua Zhao (Department of Computer Engineering, Tianjin University, China)

2.4 Energy Efficient Distributed Grouping and Scaling for Real-Time Data Compression in Sensor Networks

Thomas Szalapski and Sanjay Madria (Department of Computer Science, Missouri University of Science and Technology, USA)

2.5 Proximity-driven Social Interactions and Their Impact on the Throughput Scaling of Wireless Networks

Ali Dabirmoghaddam (Department of Computer Engineering, University of California, Santa Cruz, USA); J. J. Garcia-Luna-Aceves (Department of Computer Engineering, University of California at Santa Cruz and PARC)

LUNCH (FRIO): 12:15 - 1:30 P.M.

SESSION 3 (BRAZOS): 1:30 - 3:30 P.M.

SESSION 3: NEW FIELDS

CHAIR: FAN LI, BEIJING INSTITUTE OF TECHNOLOGY, CHINA

3.1 Accurate Statistical Performance Modeling and Validation of Out-of-Order Processors Using Monte Carlo Methods

Waleed Alkohani, Jeanine Cook (Klipsch School of Electrical and Computer Engineering, New Mexico State University, USA); Jonathan Cook (Computer Science Department, New Mexico State University, USA)

3.2 An Efficient Certificate Revocation Scheme for Large-Scale AMI Networks

Mohamed Mahmoud (Department of Electrical & Computer Engineering, Tennessee Tech University, USA); Kemal Akkaya (Department of Computer Science, Southern Illinois University, USA); Khaled Rabieh (Department of Electrical & Computer Engineering, Tennessee Tech University, USA); Samet Tonyali (Department of Computer Science, Southern Illinois University, USA)

3.3 TMODF: Trajectory-based Multi-objective Optimal Data Forwarding in Vehicular Networks

Maocai Fu, Xin Li, Fan Li, Xinyu Guo (School of Computer Science, Beijing Institute of Technology, China); Zhili Wu (Weiheng Technology Co. Ltd, China)

3.4 A New Multi-objective Microgrid Restoration Via Semidefinite Programming

Liang Zhao, Wen-Zhan Song (Department of Computer Science, Georgia State University, USA)

3.5 QGrid: Q-learning Based Routing Protocol for Vehicular Ad Hoc Networks

Ruiling Li, Fan Li, Xin Li (School of Computer Science, Beijing Institute of Technology, China); Yu Wang (Department of Computer Science, University of North Carolina at Charlotte, USA)

SESSION 4 (CONCHO): 1:30 - 3:30 P.M.

SESSION 4: COMMUNICATIONS

CHAIR: DOAN B HOANG, UNIVERSITY OF TECHNOLOGY, SYDNEY, AUSTRALIA

4.1 A Novel Algorithm for Sparse FFT Pruning and its Applications to OFDMA Technology

Shakeel S. Abdulla, Jacob A. Abraham (Department of Electrical and Computer Engineering, University of Texas, Austin, USA); Haewoon Nam (Department of Electronics and Communication Engineering, Hanyang University, Korea)

4.2 An Efficient Burst Detection Algorithm for CDMA/Adaptive TDMA based Wideband Networking SDR Waveform

Muhammad Zeeshan (College of Electrical & Mechanical Engineering, National University of Sciences and Technology, Pakistan); Shoab Ahmed Khan (National University of Sciences and Technology, Pakistan)

4.3 ZigBee vs WiFi: Understanding Issues and Measuring Performances of their Coexistence

Zenghua Zhao (School of Computer Science and Technology, Tianjin University, China and Tianjin Key Laboratory of Cognitive Computing and Application, China); Xuanxuan Wu (School of Computer Science and Technology, Tianjin University, China); Xin Zhang (School of Computer Science and Technology, Tianjin University, China); Jing Zhao and Xiang-Yang Li (Department of Computer Science, Illinois Institute of Technology, USA)

4.4 A Domain-specific Language to Facilitate Software Defined Radio Parallel Executable Patterns Deployment on Heterogeneous Architectures

Lerato J. Mohapi, Simon Winberg, Michael Inggs (Department of Electrical Engineering, Radar Remote Sensing Group, University of Cape Town, South Africa)

4.5 RainbowRate: MIMO Rate Adaptation in 802.11n WiLD Links

Zenghua Zhao (School of Computer Science and Technology, Tianjin University, China); Fucheng Zhang (School of Computer Software, Tianjin University, China); Shaoping Guo (School of Computer Science and Technology, Tianjin University, China); Xiang-Yang Li and JunZe Han (Department of Computer Science, Illinois Institute of Technology, USA)

SESSION 5 (BRAZOS): 3:45 - 5:45 P.M.

SESSION 5: POWER CONSUMPTION

CHAIR: WEICHAO WANG, UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE, USA

5.1 Automated Estimation of Power Consumption for Rapid System Level Design

Yasaman Samei and Rainer Dömer (University of California, Irvine, USA)

5.2 Performance and Energy Evaluation of RESTful Web Services in Raspberry Pi

Luiz H. Nunes, Luis H. V. Nakamura, Heitor de F. Vieira, Rafael M. de O. Libardi, Edvard M. de Oliveira, Julio C. Estrella (University of São Paulo (USP), Institute of Mathematics and Computer Science (ICMC), São Carlos-SP, Brazil); Stephan Reiff-Marganiec (University of Leicester, University Road, Leicester, UK)

5.3 Analyzing I/O Patterns for the Design of Energy-Efficient Messenger Servers:

Jaemyoun Lee, Kyungtae Kang (Department of Computer Science & Engineering, Hanyang University, Ansan, Gyeonggi-do, Korea); Chang Song (Naver Labs, Bundang, Gyeonggi-do, Korea)

5.4 Joint Power Optimization Through VM Placement and Flow Scheduling in Data Centers

Dawei Li, Jie Wu (Department of Computer and Information Sciences, Temple University, USA); Zhiyong Liu, Fa Zhang (Institute of Computing Technology, Chinese Academy of Sciences, China)

5.5 ERUPT: Energy-efficient rUStworthy Provenance Trees for Wireless Sensor Networks

S. M. Iftekharul Alam (School of ECE, Purdue University, USA); David Yau (Information Systems Technology & Design, Ngee Ann Polytechnic University of Technology & Design, Singapore); Sonia Fahmy (Department of Computer Science, Purdue University, USA)

BREAK: 3:30 - 3:45 P.M.

SESSION 6 (CONCHO): 3:45 - 5:45 P.M.

SESSION 6: COMPUTER ARCHITECTURE

CHAIR: LERATO MOHAPI, UNIVERSITY OF CAPE TOWN, SOUTH AFRICA

6.1 An Efficient Spin-Lock Based Multi-Core Resource Sharing Protocol

Martin Alfranseder, Benjamin Justus, Jürgen Mottok (Ostbayerische Technische Hochschule Regensburg, Faculty of Electrical Engineering and Information Technology, Germany); Michael Deubzer (Timing Architects Embedded Systems GmbH, Germany); Christian Siemers (Clausthal University of Technology, Institute of Computer Science, Germany)

6.2 Analysis of Cache Tuner Architectural Layouts for Multicore Embedded Systems

Tosiron Adegija and Ann Gordon-Ross (Department of Electrical and Computer Engineering, University of Florida, USA); Marisha Rawlins (Center for Information and Communication Technology, University of Trinidad and Tobago, Trinidad and Tobago)

6.3 A Novel Thermal-Constrained Energy-Aware Partitioning Algorithm for Heterogeneous Multiprocessor Real-Time Systems

Bjorn Barrefors, Ying Lu, Shivashis Saha, and Jitender S. Deogun (Department of Computer Science and Engineering, University of Nebraska-Lincoln, USA)

6.4 WCET Analysis of Static NUCA Caches

Yiqiang Ding and Wei Zhang (Department of Electrical and Computer Engineering, Virginia Commonwealth University, USA)

6.5 Session-based Access Control in Information-Centric Networks: Design and Analyses

Yu Wang, Mingwei Xu, Zhen Feng (Department of Computer Science and Technology, Tsinghua University, Beijing, China); Qing Li and Qi Li (Graduate School at Shenzhen, Tsinghua University, China)

2014 IPCCC SCHEDULE DAY TWO - SATURDAY, DECEMBER 6

REGISTRATION AND CONFERENCE UPDATES: (7:45 A.M. IN BRAZOS FOYER)

KEYNOTE ADDRESS I (BRAZOS): 8:00 - 9:15 A.M. PROFESSOR NICK DUFFIELD, TEXAS A&M UNIVERSITY

SESSION 7 (BRAZOS): 9:30 A.M. - 12 P.M.

BREAK: 9:15 - 9:30 A.M.

SESSION 8 (CONCHO): 9:30 A.M. - 12 P.M.

SESSION 7: DATA STORAGE AND DISTRIBUTION

CHAIR: MEA WANG, UNIVERSITY OF CALGARY, CANADA

7.1 A Hybrid Erasure-Coded ECC Scheme to Improve Performance and Reliability of Solid State Drives

Pradeep Subedi, Ping Huang, Xubin He (Electrical and Computer Engineering, Virginia Commonwealth University, USA); Ming Zhang (Ming Associates, USA); Jizhong Han (Institute of Information Engineering, Chinese Academy of Sciences, China)

7.2 Enhancing the I/O System for Virtual Machines Using High Performance SSDs

Myoungwon Oh, Hyeonsang Eom and Heon Y. Yeom (School of Computer Science & Engineering, Seoul National University, Korea)

7.3 Application-aware Video-Sharing Services via Provenance in Cloud Storage

Jinjun Liu, Dan Feng*, Yu Hua, Bin Peng, Pengfei Zuo (Wuhan National Laboratory for Optoelectronics, School of Computer, Huazhong University of Science and Technology Wuhan, China / *Corresponding author)

7.4 Replica Placement in Content Delivery Networks with Stochastic Demands and M/M/1 Servers

Chenkai Yang, Bing Leng, Xinglong Wang (School of Computer Science & Technology, University of Science and Technology of China, Hefei, China); Liusheng Huang, Hongli Xu (Suzhou Institute for Advanced Study, University of Science & Technology of China, Suzhou, China)

7.5 An Efficient Time-Stamping Solution for Long-Term Digital Archiving

Martin Vigil, Christian Weinert, Denise Demirel and Johannes Buchmann (Technische Universität Darmstadt, Germany)

7.6 An Encryption and Probability based Access Control Model for Named Data Networking

Tao Chen, Kai Lei* (Shenzhen Key Lab for Cloud Computing Technology & Applications (SPCCTA), School of Electronics and Computer Engineering (SECE)

Peking University, Shenzhen China / *Corresponding author); Kuai Xu (School of Mathematical and Natural Sciences, Arizona State University, USA)

SESSION 8: CLOUD COMPUTING

CHAIR: WEI ZHANG, VIRGINIA COMMONWEALTH UNIVERSITY, USA

8.1 SLA Aware Cost Efficient Virtual Machines Placement in Cloud Computing

Jiangtao Zhang (School of Computer Science and Technology, Harbin Institute of Technology Shenzhen Graduate School, and Public Service Platform of Mobile Internet Application Security Industry, Shenzhen, China); Zhixiang He (School of Computer Science and Technology, Harbin Institute of Technology Shenzhen Graduate School, and Shenzhen Key Laboratory of Internet of Information Collaboration, Shenzhen, China); Hejiao Huang (School of Computer Science and Technology, Harbin Institute of Technology Shenzhen Graduate School, and Shenzhen Key Laboratory of Internet of Information Collaboration, Shenzhen, China); Xuan Wang (School of Computer Science and Technology, Harbin Institute of Technology Shenzhen Graduate School, and Shenzhen Applied Technology Engineering Laboratory for Internet Multimedia Application, Shenzhen, China); Chonglin Gu (School of Computer Science and Technology, Harbin Institute of Technology Shenzhen Graduate School, and Shenzhen Key Laboratory of Internet of Information Collaboration, Shenzhen, China); Lingmin Zhang (School of Computer Science and Technology, Harbin Institute of Technology Shenzhen Graduate School, and Shenzhen Key Laboratory of Internet of Information Collaboration, Shenzhen, China)

8.2 Achieving Bandwidth Guarantees in Multi-Tenant Cloud Networks Using A Dual-Hose Model

Meng Shen (School of Computer Science, Beijing Institute of Technology, China); Lixin Gao (Department of Electrical and Computer Engineering, University of Massachusetts at Amherst, USA); Ke Xu (Department of Computer Science, Tsinghua University, China); Liehuang Zhu (School of Computer Science, Beijing Institute of Technology, China)

8.3 Online Combinatorial Double Auction for Mobile Cloud Computing Markets

Ke Xu, Yuchao Zhang, Xuelin Shi (Department of Computer Science and Technology, Tsinghua University, China); Haiyang Wang (Department of Computer Science, University of Minnesota at Duluth, USA); Yong Wang (School of Social Sciences, Tsinghua University, China); Meng Shen (School of Computer Science, Beijing Institute of Technology, China)

8.4 A Combinatorial Double Auction Mechanism for Cloud Resource Group-buying

Zehao Sun, Zhenyu Zhu, Long Chen, Hongli Xu, Liusheng Huang (School of Computer Science and Technology, University of Science and Technology of China, China)

8.5 Virtual Data Center Allocation with Dynamic Clustering in Clouds

Li Shi (Department of Electrical and Computer Engineering, Stony Brook University, USA); Dimitrios Katramatos (Computational Science Center, Brookhaven National Laboratory, USA); Dantong Yu (Computational Science Center, Brookhaven National Laboratory, USA)

8.6 Resisting Label-Neighborhood Attacks in Outsourced Social Networks

Yang Wang, Fudong Qiu, Fan Wu and Guihai Chen (Shanghai Key Laboratory of Scalable Computing and Systems, Department of Computer Science and Engineering, Shanghai Jiao Tong University, China)

LUNCH (ATRIUM TEAK BELLS): 12:15 - 1:30 P.M.

KEYNOTE ADDRESS II (BRAZOS): 1:30 - 2:45 P.M.

PROFESSOR JIE WU, TEMPLE UNIVERSITY

SESSION 9 (BRAZOS): 3:00 - 5:45 P.M.

BREAK: 2:45 - 3:00 P.M.

SESSION 10 (CONCHO): 3:00 - 5:45 P.M.

SESSION 9: SECURITY AND DATA SERVICES

CHAIR: YU WANG, UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE, USA

9.1 Provenance Logic: Enabling Multi-Event Based Trust in Mobile Sensing

Xinlei Wang, Hao Fu, Chao Xu, Prasant Mohapatra (Department of Computer Science, University of California, Davis, USA)

9.2 POLA: A Privacy-Preserving Protocol for Location-Based Real-Time Advertising

Yiming Pang, Yichen Chen, Peiyuan Liu, Fudong Qiu, Fan Wu, Guihai Chen (Shanghai Key Laboratory of Scalable Computing and Systems, Department of Computer Science and Engineering, Shanghai Jiao Tong University, China)

9.3 Efficient and Enhanced Broadcast Authentication Protocols based on Multilevel μ TESLA

Xiang Li, Na Ruan, Fan Wu, Jie Li, Mengyuan Li (Shanghai Jiao Tong University, China)

9.4 Randomized Routing in Multi-Party Internet Video Conferencing

Yousuk Seung, Quan Leng, Wei Dong, Lili Qiu, Yin Zhang (University of Texas at Austin, USA)

9.5 reMA: Real-Time 3D Video Streaming System for Mobile Devices

Suk Kyu Lee, Hyunsoo Kim, Woonghee Lee, Hwantaek Kim, Jongtaek Jung, and Hwangnam Kim (School of Electrical Engineering, Korea University, Korea)

9.6 Pricing and Revenue Sharing Mechanism for Secondary Re-distribution of Data Service for Mobile Devices

Hengky Susanto, Bhanu Kaushik, Benyuan Liu, and ByungGuk Kim (Department of Computer Science, University of Massachusetts at Lowell, USA)

9.7 Distributed Compressive Data Gathering in Low Duty Cycle Wireless Sensor Network

Yimao Wang (Department of Computer Science and Engineering, Shanghai Jiao Tong University, China); Yanmin Zhu* (Shanghai Key Lab of Scalable Computing and Systems, China / *Corresponding author); Ruobing Jiang and Juan Li (Department of Computer Science and Engineering, Shanghai Jiao Tong University, China)

SESSION 10: SOCIAL NETWORKS AND THEORY

CHAIR: KUI XU, ARIZONA STATE UNIVERSITY, USA

10.1 Hot Topic Analysis and Content Mining in Social Media

Qian Yu, Wei Tao Weng, Kai Zhang (Shenzhen Key Lab for Cloud Computing Technology & Applications (SPCCTA) School of Electronics and Computer Engineering, Peking University, Shenzhen, China); Kai Lei* (Shenzhen Key Lab for Cloud Computing Technology & Applications (SPCCTA) School of Electronics and Computer Engineering, Peking University, Shenzhen, China / *Corresponding author); Kuai Xu (School of Mathematical and Natural Sciences, Arizona State University, USA)

10.2 Evaluation of a Platform for the Provisioning of Community-Contributed Web Services

Daniel Vijayakumar (School of Computer Science, University of Guelph, Canada); Quasay H. Mahmoud (Department of Electrical, Computer and Software Engineering, University of Ontario Institute of Technology, Oshawa, Canada)

10.3 Patterns and Modeling of Group Growth in Online Social Networks

Jianwei Niu and Shaluo Huang (State Key Laboratory of Virtual Reality Technology and Systems, School of Computer Science and Engineering, Beihang University, Beijing, China); Milica Stojmenovic (FICT, Swinburne University of Technology, Hawthorn, Australia)

10.4 Parallelization of Tree-to-TLV Serialization

Makoto Nakayama (Research Laboratories, NTT DOCOMO, Inc., and Department of Computer Science and Engineering, Waseda University, Japan); Kenichi Yamazaki (College of Engineering and Design, Shibaura Institute of Technology, Japan); Satoshi Tanaka (Research Laboratories, NTT DOCOMO, INC., Japan); Hironori Kasahara (Department of Computer Science and Engineering, Waseda University, Japan)

10.5 JLMC: A Clustering Method based on Jordan-Form of Laplacian-Matrix

Jianwei Niu and Jinyang Fan (State Key Laboratory of Virtual Reality Technology and Systems, School of Computer Science and Engineering, Beihang University, Beijing, China); Ivan Stojmenovic (Electrical Engineering and Computer Science, University of Ottawa, Canada)

10.6 Delay-Impact-Based Local Deadline Assignment for Online Scheduling of Distributed Soft Real-Time Applications

Miao Song, Shuhui Li, Shangping Ren (Illinois Institute of Technology, USA); Gang Quan (Florida International University, USA)

10.7 Maximizing System's Total Accrued Utility Value for Parallel and Time-Sensitive Applications

Shuhui Li, Miao Song, Peng-Jun Wan, Shangping Ren (Department of Computer Science, Illinois Institute of Technology, USA)

RECEPTION & POSTER SESSION (ATRIUM TEAK BELLS): 6:00 - 7:45 P.M. (SEE PAGE 6 FOR POSTERS & AUTHORS)

2014 IPCCC SCHEDULE DAY THREE - SUNDAY, DECEMBER 7

REGISTRATION AND CONFERENCE UPDATES: (7:45 A.M. IN BRAZOS FOYER)

SESSION 11 (BRAZOS): 8:00 - 9:15 A.M.

SESSION 11: PERFORMANCE

CHAIR: HENGYK SUSANTO, UNIVERSITY OF MASSACHUSETTS AT LOWELL, USA

11.1 Performance Enhancement in Shared-Memory Multiprocessors Using Dynamically Classified Sharing Information

Nilufar Ferdous (Department of Electrical & Computer Engineering, University of Texas at San Antonio, USA); Byeong Kil Lee (Samsung Research, Samsung, Korea); Eugene John (Department of Electrical & Computer Engineering, University of Texas at San Antonio, USA)

11.2 GPU Acceleration of Finding LPRs in DNA Sequence Based on SUA Index

Shufang Du (School of Computer Science and Technology, Heilongjiang University, Harbin, China); Longjiang Guo (School of Computer Science and Technology, Heilongjiang University, Harbin, China and Key Laboratory of Database and Parallel Computing, Harbin, China); Chunyu Ai (Division of Math & Computer Science, University of South Carolina Upstate, Spartanburg, USA); Meirui Ren, Jinbao Li (School of Computer Science and Technology, Heilongjiang University, Harbin, China and Key Laboratory of Database and Parallel Computing, Harbin, China); Hao Qu (School of Computer Science and Technology, Heilongjiang University, Harbin, China)

11.3 Data Analytics Workloads: Characterization and Similarity Analysis

Reena Panda, Lizy Kurian John (Department of Electrical and Computer Engineering, University of Texas at Austin, USA)

BREAK: 9:15 - 9:30 A.M.

SESSION 12 (BRAZOS): 9:30 - 11:30 A.M.

SESSION 12: SECURITY AND TRUST

CHAIR: DANDA B. RAWAT, GEORGIA SOUTHERN UNIVERSITY, USA

12.1 EPPI: An E-cent-based Privacy-preserving Incentive Mechanism for Participatory Sensing Systems

Xiaoguang Niu, Meng Li, Qianyuan Chen, qingqing Cao, Houzhen Wang (School of Computer Science, Wuhan University, Wuhan, China)

12.2 Continuous User Identification via Touch and Movement Behavioral Biometrics

Cheng Bo (Department of Computer Science, University of North Carolina at Charlotte, USA); Lan Zhang (Department of Software Engineering, Tsinghua University, Beijing, China); Taeho Jung, Junze Han (Department of Computer Science, Illinois Institute of Technology, Chicago, USA); Xiang-Yang Li (Department of Software Engineering, Tsinghua University, Beijing, China and Department of Computer Science, Illinois Institute of Technology, Chicago, USA); Yu Wang (Department of Computer Science, University of North Carolina at Charlotte, Charlotte, USA)

12.3 Secure Data Provenance Compression Using Arithmetic Coding in Wireless Sensor Networks

Syed Rafiul Hussain (Department of Computer Science, Purdue University, USA); Changda Wang (School of Computer Science and Communication Engineering, Jiangsu University, China); Salmin Sultana and Elisa Bertino (Department of Computer Science, Purdue University, USA)

12.4 Virtual Structures and Heterogeneous Nodes in Dependency Graphs for Detecting Metamorphic Malware

Gilbert Breves Martins, Rosiane de Freitas, Eduardo Souto (Institute of Computing, Federal University of Amazonas Manaus, Brazil)

CONFERENCE ADJOURN: 11:30 A.M.

POSTERS & AUTHORS (ATRIUM TEAK BELLS): POSTER PRESENTATION ON SATURDAY, DECEMBER 6, 6:00 P.M.

P.1 Let More Nodes Have a Second Choice

Haijun Geng, Xingang Shi, Xia Yin, Zhiliang Wang, Han Zhang

P.2 File-System-Level Flash Caching for Improving Application Launch Time on Logical Hybrid Disks

Changhee Han, Junhee Ryu, Dongeun Lee, Kyungtae Kang, Heonshik Shin

P.3 The Automatic Configuration of Transmit Power in LTE Networks Based on Throughput Estimation

Mariusz Slabicki, Krzysztof Grochla

P.4 Low-Latency Last-Level Cache Structure Based on Grouped Cores in Chip Multi-Processor

Jinbo Xu, Kefei Wang, Zhengbin Pang

P.5 A Knowledge Management Approach for Testing Open Source Software Systems

Tamer Abdou, Pankaj Kamthan

P.6 Financial Fraud Detection Using Social Media Crowdsourcing

Timothy Matti, Yuntao Zhu, Kuai Xu

P.7 Test Oriented Formal Model of SDN Applications

Jiangyuan Yao, Zhiliang Wang, Xia Yin, Xingang Shi, Jianping Wu, Yahui Li

P.8 An Extended Contention Period Protocol for MIMO Wireless Networks

Kittipong Warasup, Masanori Hamamura

P.9 A Portable Flood Detection System in Oregon Rural Areas Using Heterogeneous Sensor Networks

Yanwei Wu, Yun Wang

P.10 A Novel Method to Estimate Performance for a High Performance Computation Workload

Joseph Issa

P.11 Design of Antenna Arrays for Isotropy Radiation in Satellite Systems

Miguel Ibarra, Marco Panduro, Angel G Andrade, Aldo Mendez

P.12 Sensitivity Analysis of Availability of Video Streaming Service in Cloud Computing

Rosangela Melo

P.13 A Centralized Latency Optimization Solution for Tree-based Application Layer Multicast

Xinchang Zhang, Weidong Gu, Lu Wang, Wei Zhang, Meng Sun

P.14 Marbor: A Novel Large-Scale Graph Data Storage and Processing Framework

Wei Zhou, Yun Gao, Jizhong Han, Zhiyong Xu

P.15 Cloud-assisted Dynamic Spectrum Access for VANET in Transportation Cyber-Physical Systems

Danda B. Rawat, Nimish Sharma, Swetha Reddy, Sachin Shetty

P.16 Embedded System Based on Microcontroller for Generating I-V Curves of Electronic Devices

Mario Illera, Sergio B Sepulveda

P.17 Characterizing the Workload Dynamics of a Mobile Phone Network During the FIFA 2014 World Cup

Hayala N Curto, Artur Ziviani, Jussara M. Almeida

P.18 Reducing (m,k)-Missing Rate for Overloaded Real-Time Systems

Alemayehu Mengste, Linwei Niu

P.19 Efficient Physical Register File Allocation in Simultaneous Multi-Threading CPUs

Yilin Zhang, Wei-Ming Lin

P.20 A Hybrid Link Protection Scheme for Link-state Routing Networks

Haijun Geng, Xingang Shi, Xia Yin, Zhiliang Wang, Han Zhang

P.21 Optimal Phase Control for Joint Transmission and Reception with Beamforming

Seonghyun Kim, Hojae Lee, Beom Kwon, Inwoong Lee, Sanghoon Lee

P.22 Cost-Comfort Balancing in a Smart Residential Building with Bidirectional Energy Trading

Abdullah Al Hasib, Nikita Nikitin, Lasse Natvig

P.23 A Heuristic for Logical Data Buffer Allocation in Multicore Platforms

Benjamin Ries, Walter Unger, Maximilian Odendahl, Rainer Leupers

P.24 A Light-weight Authentication Scheme Based on Message Digest and Location for Mobile Cloud Computing

Saurabh Dey, Srinivas Sampalli, Qiang Ye

P.25 Shaping HTTP Adaptive Streams using Receive Window Tuning Method in Home Gateway

Chiheb Ben Ameer, Emmanuel Mory, Bernard Cousin

P.26 Combinatorial JPT based on Orthogonal Beamforming for Two-cell Cooperation

Hojae Lee, Beom Kwon, Seonghyun Kim, Inwoong Lee, Sanghoon Lee

P.27 Real-Time Data Caches with Guaranteed Performance Enhancement

Yijie Huangfu, Wei Zhang

P.28 Thread Mapping using System-level Throughput Prediction Model for Shared Memory Multicores

Reshmi Mitra, Bharat Joshi, Ryan Adams

P.29 Empirical Capacity Modeling and Evaluation of Delay Tolerant Network Routing Protocols

Jeremiah D. Deng, Michael Abrams

P.30 A Modified Max-Min Ant Colony Optimization Algorithm for Virtual Machines Replacement in Cloud Datacenter

Tiantian Ren, Xinli Huang

P.31 A Promising CUDA-Accelerated Vehicular Area Network Simulator Using NS-3

Abu S Asaduzzaman, Chok Yip

P.32 Blackbox Security Evaluation of Chromecast Network Communications

Ali Tekeoglu, Ali Saman Tosun

KEYNOTE SPEAKERS

DAY TWO, SATURDAY, DECEMBER 6
8:00 - 9:15 A.M., BRAZOS

CHALLENGES AND OPPORTUNITIES FOR ANALYSIS BASED RESEARCH IN BIG DATA

PROFESSOR NICK DUFFIELD, TEXAS A&M UNIVERSITY

Abstract:

One response to the proliferation of massive datasets in man fields has been to develop ingenious ways to throw resources at the problem, for example, using massive fault tolerant storage architectures, supercomputing platforms, and parallel graph computation models. However, not all environments can support this scale of resources, and not all queries need an exact response.

Massive and diverse operational datasets have been employed by large Internet Service Providers for a number of years, and mathematical methods have underpinned their response to the challenges of data scale, incompleteness and complexity that are prevalent both in ISP data and in big data more generally. This talk reviews some recent progress in this direction, and surveys some new roles for sampling methods in Big Data.

DAY TWO, SATURDAY, DECEMBER 6
1:30 - 2:45 P.M., BRAZOS

ALGORITHMIC CROWDSOURCING: CURRENT STATUS AND FUTURE PERSPECTIVE

PROFESSOR JIE WU, TEMPLE UNIVERSITY

Abstract:

This talk gives a survey of crowdsourcing applications, with a focus on algorithmic solutions. The recent search for Malaysia flight 370 and the history of human-computer chess matches are used as motivational examples. Several applications of crowdsourcing are discussed in different areas.

Fundamental issues in crowdsourcing, in particular, incentive mechanisms for paid crowdsourcing, and algorithms and theory for crowdsourced problem-solving, are then reviewed. A set of paradigms for algorithmic crowdsourcing are given, with a focus on the cost-effective processing of a large set of data. The talk also discusses several on-going projects on crowdsourcing.

Speaker's Biography:

Dr. Nick Duffield is a Professor in the Department of Electrical and Computer Engineering at Texas A&M University.

From 1995 until 2013, he worked at AT&T Labs-Research where he was a Distinguished Member of Technical Staff and an AT&T Fellow. His research concerns the acquisition, analysis and applications of Big Data to communication networks and beyond. Dr. Duffield has twice received the ACM SIGMETRICS Test of Time award (in 2012 and 2013), and is a Fellow of the IEEE. He is Chief Editor for Big Data at the open access journal Frontiers in ICT, as is an Editor-at-Large for the IEEE/ACM Transactions on Networking

Speaker's Biography:

Dr. Jie Wu is the chair and a Laura H. Carnell Professor in the Department of Computer and Information Sciences at Temple University. Prior to joining Temple University, he was a program director at the National Science Foundation and Distinguished Professor at Florida Atlantic University. His current research interests include mobile computing and wireless networks, routing protocols, cloud and green computing, network trust and security, and social network applications.

Dr. Wu serves on several editorial boards, including IEEE Transactions on Service Computing and Journal of Parallel and Distributed Computing. Dr. Wu was general co-chair/chair for IEEE MASS 2006, IEEE IPDPS 2008, IEEE ICDCS 2013, and ACM MobiHoc 2014, as well as program co-chair for IEEE INFOCOM 2011 and CCF CNCC 2013. He was an IEEE Computer Society Distinguished Visitor, ACM Distinguished Speaker, and chair for the IEEE Technical Committee on Distributed Processing (TCDP). Dr. Wu is a CCF Distinguished Speaker and a Fellow of the IEEE. He is the recipient of the 2011 China Computer Federation (CCF) Overseas Outstanding Achievement Award.

N² WOMEN NETWORKING

DAY TWO, SATURDAY, DECEMBER 6
POST RECEPTION - ROUND TABLE DISCUSSION, CONCHO

HOW TO NETWORK EFFECTIVELY? GENERATING PROFESSIONAL OPPORTUNITES VIA NETWORKING

DR. EVDOKIA NIKOLOVA, ASSISTANT PROFESSOR, UNIVERSITY OF TEXAS AT AUSTIN

Dr. Evdokia Nikolova is an Assistant Professor in the Department of Electrical and Computer Engineering at the University of Texas at Austin, where she is a member of the Wireless Networking & Communications Group. She graduated with a BA in Applied Mathematics with Economics from Harvard University, MS in Mathematics from Cambridge University, U.K. and Ph.D. in Computer Science from MIT.

Evdokia Nikolova's research aims to improve the design

and efficiency of complex systems (such as networks and electronic markets), by integrating stochastic, dynamic and economic analysis. Her recent work examines how human risk aversion transforms traditional computational models and solutions. One of her algorithms has been adapted in the MIT CarTel (cartel.csail.mit.edu/doku.php) project for traffic-aware routing. She currently focuses on developing algorithms for risk mitigation in networks, with applications to transportation and energy.



PRELIMINARY CALL FOR PAPERS AND PARTICIPATION IN SPRING 2015

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