

RTAS 2019 Program

Tuesday, April 16, 2019

08:00-09:00 Registration

09:00-10:00 Keynote

- Victor Bahl (Microsoft)

10:00-10:30 Coffee Break

10:30-11:20 TCRTS Award Ceremony

- 2018 TCRTS Outstanding Technical Achievement and Leadership Award Acceptance Speech
James H. Anderson (University of North Carolina at Chapel Hill)

11:20-12:30 Session 1: Multicore and GPUs

- Deterministic Memory Hierarchy and Virtualization for Modern Multi-Core Embedded Systems
Tomasz Kloda and Marco Solieri (Università di Modena e Reggio Emilia); Renato Mancuso (Boston University); Nicola Capodiecì, Paolo Valente, and Marko Bertogna (Università di Modena e Reggio Emilia)
- Accurate ILP-based contention modeling on statically scheduled multicore systems
Xavier Palomo, Enrico Mezzetti, and Jaume Abella (Barcelona Supercomputing Center); Reinder J. Bril (Technische Universiteit Eindhoven); Francisco J. Cazorla (Barcelona Supercomputing Center)
- Fractional GPUs: Software-based Compute and Memory Bandwidth Reservation for GPUs
Saksham Jain and Iljoon Baek (Carnegie Mellon University); Shige Wang (GM Motors R&D); Ragunathan (Raj) Rajkumar (Carnegie Mellon University)

12:30-14:00 Lunch

14:00-15:30 Session 2: Systems and Applications I

- Doorpler : A Radar-based System for Low Power, Real-time Zone Occupancy Sensing
Avinash Kalyanaraman, Elahe Soltanaghaei, and Kamin Whitehouse (University of Virginia)
- PIFA: An Intelligent Phase Identification and Frequency Adjustment Framework for Time-Sensitive Mobile Computing
Xia Zhang (University of Texas at Dallas); Xusheng Xiao (Case Western Reserve University); Liang He (University of Colorado at Denver); Yun Ma, Yangyang Huang, and Xuanzhe Liu (Peking University); Wenyao Xu (University at Buffalo); Cong Liu (University of Texas at Dallas)
- Deterministic Futures: Addressing WCET and Bounded Interference Concerns
Alexander Zuepke and Robert Kaiser (RheinMain University of Applied Sciences)
- Chaos: a System for Criticality-Aware, Multi-core Coordination
Phani Kishore Gadepalli, Gregor Peach, Gabriel Parmer, Joseph Espy, and Zach Day (The George Washington University)

15:30-16:00 Coffee Break

16:00-17:30 Session 3: Brief Presentations

- Work-in-progress and demo presentations (TBD)

17:30-20:00 Demo and Poster Session (with Cocktail Reception)

Wednesday, April 17, 2019

08:00-09:00 Registration

09:00-10:00 Keynote

- Moshe Vardi (Rice University)

10:00-10:30 Coffee Break

10:30-11:40 Session 4: Security and Differential Timing Analysis

- A Novel Side-Channel in Real-Time Schedulers
Chien-Ying Chen and Sibin Mohan (University of Illinois at Urbana-Champaign); Rodolfo Pellizzoni (University of Waterloo); Rakesh B. Bobba (Oregon State University); Negar Kiyavash (University of Illinois at Urbana-Champaign)
- On the Pitfalls and Vulnerabilities of Schedule Randomization against Schedule-Based Attacks
Mitra Nasri (Delft University of Technology); Thidapat (Tam) Chantem (Virginia Tech); Gedare Bloom (Howard University); Ryan M. Gerdes (Virginia Tech)
- Characterizing Dominant Program Behavior Using the Execution-Time Variance of the Call Structure
Tushar Kumar (Google, Inc.); Kangqi Ni and Santosh Pande (Georgia Tech)

11:40-12:30 Breakout Session / Collaboration Time

- Time to make progress with your collaborators on next year's RTAS submission.

12:30-14:00 Lunch

14:00-15:30 Session 5: Parallel Tasks

- Bundled Scheduling of Parallel Real-time Tasks
Saud Wasly(King Abdulaziz University); Rodolfo Pellizzoni (University of Waterloo)
- RT-Gang: Real-Time Gang Scheduling Framework for Safety Critical Systems
Waqar Ali and Heechul Yun (The University of Kansas)
- Energy-Efficient Real-Time Scheduling of DAGs on Clustered Multi-Core Platforms
Zhishan Guo and Ashikahmed Bhuiyan (University of Central Florida); Di Liu (Yunnan University); Aamir Khan (BrainCo); Abusayeed Saifullah (Wayne State University); Nan Guan (Hong Kong Polytechnic University)
- Calculating Response Time Bounds for OpenMP Task Systems with Conditional Branches
Jinghao Sun (Northeastern University); Nan Guan (The Hong Kong Polytechnic University); Jingchang Sun (Tsinghua University); Yaoyao Chi (Northeastern University)

15:30-16:00 Coffee Break

16:00-17:30 Session 6: Networks

- CertiCAN: A Tool for the Coq Certification of CAN Analysis Results
Pascal Fradet (Inria Grenoble); Xiaojie Guo (Univ. Grenoble Alpes, Inria); Jean-François Monin (Univ. Grenoble Alpes); Sophie Quinton (Inria Grenoble)
- Optimal Priority Assignment for Scheduling Mixed CAN and CAN-FD Frames
Taeju Park and Kang G. Shin (University of Michigan, Ann Arbor)
- Fault-Resilient Real-Time Communication Using Software-Defined Networking
Kilho Lee, Minsu Kim, and Hayeon Kim (School of Computing, KAIST, Republic of Korea); Jinkyu Lee (Dept. of Computer Science and Engineering, Sungkyunkwan University (SKKU), Republic of Korea); Hoon Sung Chwa (Dept. of Information and Communication Engineering, DGIST, Republic of Korea); Insik Shin (School of Computing, KAIST, Republic of Korea)
- DistributedHART: A Distributed Real Time Scheduling System for WirelessHART Networks
Venkata Prashant Modekurthy and Abusayeed Saifullah (Wayne State University); Sanjay Madria (Missouri University of Science and Technology)

17:30-18:00 CPS-IoT Week Business Meeting

19:30-22:30 Banquet

Thursday, April 18, 2019

08:00-09:00 Registration

09:00-10:00 Keynote

- Tulika Mitra (National University of Singapore)

10:00-10:30 Coffee Break

10:30-12:30 Session 7: Scheduling and Synchronization

- Improving a Compositional Timing Analysis Framework for Weakly-Hard Real-Time Systems
Leonie Köhler and Rolf Ernst (TU Braunschweig)
- Job-Class-Level Fixed Priority Scheduling of Weakly-Hard Real-Time Systems
Hyunjong Choi and Hyoseung Kim (University of California, Riverside); Qi Zhu (Northwestern University)
- Thermal-Aware Servers for Real-Time Tasks on Multi-Core GPU-Integrated Embedded Systems
Seyemehdi Hosseinimotlagh and Hyoseung Kim (University of California, Riverside)
- Self-aware scheduling for mixed-criticality component-based systems
Johannes Schlatow, Mischa Möstl, and Rolf Ernst (TU Braunschweig)
- Multiprocessor Synchronization of Periodic Real-Time Tasks Using Dependency Graphs
Junjie Shi, Niklas Ueter, Georg von der Brueggen, and Jian-Jia Chen (TU Dortmund)

12:30-14:00 Lunch

14:00-15:30 Session 8: Systems and Applications II

- Virtualization on TrustZone-enabled Microcontrollers? Voilà!
Sandro Pinto, Hugo Araújo, Daniel Oliveira, José Martins, and Adriano Tavares (Universidade do Minho)
- Re-thinking CNN Frameworks for Time-Sensitive Autonomous-Driving Applications: Addressing an Industrial Challenge
Ming Yang, Joshua Bakita, and Thanh Vu (The University of North Carolina at Chapel Hill); Shige Wang (General Motors Research); F. Donelson Smith, James H. Anderson, and Jan-Michael Frahm (The University of North Carolina at Chapel Hill)
- Proving Real-Time Capability of Generic Operating Systems by System-Aware Timing Analysis
Simon Schuster, Peter Wägemann, Peter Ulbrich, and Wolfgang Schröder-Preikschat (Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU))
- Achieving Stagnation-Free Intermittent Computation with Boundary-Free Adaptive Execution
Jongouk Choi (Virginia Tech); Hyunwoo Joe and Yongjoo Kim (ETRI); Changhee Jung (Virginia Tech)

15:30-16:00 Coffee Break

16:00-17:30 Session 9: Outstanding Papers

- Holistic Resource Allocation for Multicore Real-Time Systems
Meng Xu, Linh Thi Xuan Phan, and Hyon-Young Choi (University of Pennsylvania); Yuhan Lin (Northeastern University); Haoran Li and Chenyang Lu (Washington University in St. Louis); Insup Lee (University of Pennsylvania)
- Denial-of-Service Attacks on Shared Cache in Multicore: Analysis and Prevention
Michael Bechtel and Heechul Yun (University of Kansas)
- RTNF: Predictable Latency for Network Function Virtualization
Saeed Abedi, Neeraj Gandhi, and Henri Maxime Demoulin (University of Pennsylvania); Yang Li and Yang Wu (Facebook); Linh Thi Xuan Phan (University of Pennsylvania)
- Chair's closing remarks