RTSS 2014 Preliminary Program

Workshops and Demos: Tue Dec 2

8:00 Registration Opens
9:00-10:30 Workshop Sessions I
10:30-11:00 Coffee Break I
11:00-12:30 Workshop Sessions II
12:30-14:00 Lunch
14:00-15:30 Workshop Sessions III
15:30-16:00 Coffee Break II
16:00-17:30 Workshop Sessions IV
17:30-18:00 RTSS@Work Presentations
18:00-20:00 RTSS@Work Demos and Reception

Main conference: Wed-Fri Dec 3-5

Day 1 (Wed Dec 3)

8:15-8:30 Welcome
Michael González Harbour (Universidad de Cantabria), and Chris Gill (Washington University in St. Louis)

8:30-9:00 AWARD SPEECH: “Real-Time Systems: Achievements and Perspectives”
Giorgio Buttazzo (Scuola Superiore Sant’Anna)

9:00-10:00 Session 1: Wireless Sensor Networks I
Generalized Decision Aggregation in Distributed Sensing Systems
Lu Su, Qi Li, Shaohan Hu, Shiguang Wang, Jing Gao, Hengchang Liu, Tarek Abdelzaher, Jiawei Han, Xue Liu, Yan Gao, and Lance Kaplan

FLOPSYNC-2: Efficient Monotonic Clock Synchronisation
Federico Terraneo, Luigi Rinaldi, Martina Maggio, Alessandro Vittorio Papadopoulos, and Alberto Leva

10:00-10:30 Break

10:30-12:00 Session 2: Mixed Criticality I

Adaptive Mixed Criticality Scheduling with Deferred Preemption
Alan Burns and Robert Davis

Scheduling Mixed-criticality Implicit-deadline Sporadic Task Systems upon a Varying-speed Processor
Sanjoy Baruah and Zhishan Guo

MC-Fluid: Fluid Model-based Mixed-Criticality Scheduling on Multiprocessors
Jaewoo Lee, Kieu-My Phan, Xiaozhe Gu, Jiyeon Lee, Arvind Easwaran, Insik Shin and Insup Lee

12:30-14:00 Lunch

14:00-15:30 Session 3: Cyber-Physical Systems I

Formal Analysis of Timing Effects on Closed-loop Properties of Control Software
Improving Control Performance by Minimizing Jitter in RT-WiFi Networks
Quan Leng, Yi-Hung Wei, Song Han, Al Mok, Wenlong Zhang, and Masayoshi Tomizuka

Towards Cyber-physical Systems in Social Spaces: The Data Reliability Challenge
Shiguang Wang, Dong Wang, Lu Su, Lance Kaplan, and Tarek Abdelzaher

15:30-16:00 Break

16:00-17:30 Session 4: Platforms I
vMPCP: A Synchronization Framework for Multi-Core Virtual Machines
Hyoseung Kim, Shige Wang and Raj Rajkumar

Fast on Average, Predictable in the Worst Case: Exploring Real-Time Futexes in LITMUS^RT
Roy Spliet, Manohar Vanga, Björn Brandenburg, and Sven Dziadek

On the Complexity of Worst-Case Blocking Analysis of Nested Critical Sections
Alexander Wieder and Björn Brandenburg

17:30-19:30 Work-in-Progress Session and Posters

Day 2 (Thu Dec 4)

9:00-10:00 KEYNOTE: “Rigorous System Design”
Joseph Sifakis (EPFL)
10:00-10:30 Break

10:30-12:00 Session 5: Design and Verification

A Framework for Automated Competitive Analysis of On-line Scheduling of Firm-Deadline Tasks
Andreas Pavlogiannis, Krishnendu Chatterjee, Ulrich Schmid and Alexander Koessler

Deriving Unbounded Proof of Linear Hybrid Automata From Bounded Verification
Dingbao Xie, Lei Bu, and Xuandong Li

Real-Time Reachability for Verified Simplex Design
Stanley Bak, Taylor T Johnson, Marco Caccamo, and Lui Sha

12:30-14:00 Lunch

14:00-15:30 Session 6: Scheduling Analysis I

Fixed-Relative-Deadline Scheduling of Hard Real-Time Tasks with Self-Suspensions
Jian-Jia Chen and Cong Liu

Integrating Cache-Related Pre-emption Delays into Analysis of Fixed Priority Scheduling with Pre-emption Thresholds
Reinder J Bril, Sebastian Altmeyer, Martijn van den Heuvel, Robert Davis, and Moris Behnam

Bursty-Interference Analysis Techniques for Analyzing Complex Real-Time Task Models
Cong Liu and Jian-Jia Chen

15:30-16:00 Break

16:00-17:30 Session 7: Mixed-Criticality II

A Wormhole NoC Protocol for Mixed Criticality Systems
Alan Burns, James Harbin and Leandro Indrusiak

A Synchronous IPC Protocol for Predictable Access to Shared Resources in Mixed-Criticality Systems
Björn Brandenburg

**A Dual-Criticality Memory Controller (DCmc): Proposal and Evaluation for a Space Case Study**
Javier Jalle, Eduardo Quinones, Jaume Abella, Luca Fossati, Marco Zulianello and Francisco Cazorla

17:30-18:30 TC Meeting
20:00-22:00 Banquet

**Day 3 (Fri Dec 5)**

8:30-10:00 Session 8: Cyber-Physical Systems II

**PTEC: A System for Predictive Thermal and Energy Control in Data Centers**
Jinzhu Chen, Rui Tan, Guoliang Xing, and Xiaorui Wang

**Real-Time Charge/Discharge Rate Management for Hybrid Energy Storage in Electric Vehicles**
Eugene Kim, Jinkyu Lee, and Kang G Shin

**Battery- and Aging-Aware Embedded Control Systems for Electric Vehicles**
Wanli Chang, Alma Proebstl, Dip Goswami, Majid Zamani, and Samarjit Chakraborty

10:00-10:30 Break

10:30-12:30 Session 9: Platforms II

**Linux's Processor Affinity API, Refined: Shifting Real-Time Tasks towards Higher Schedulability**
Felipe Cerqueira, Arpan Gujarati, and Björn Brandenburg

**Exploring the Multitude of Real-Time Multi-GPU Configurations**
Glenn Elliott and James Anderson
Predictable Communication and Migration in the Quest-V Separation Kernel
Richard West, Ye Li, Zhuoqun Cheng, and Eric Missimer

The Frame Packing Problem for CAN-FD
Unmesh D Bordoloi and Soheil Samii

12:30-14:00 Lunch

14:00-15:30 Session 10: Scheduling Analysis II
Time-Reversibility of Schedulability Tests
Jinkyu Lee

Approximate Response Time Analysis of Real-Time Task Graphs
Nan Guan, Chuancai Gu, Martin Stigge, Qingxu Deng, and Wang Yi

Independence Thresholds: Balancing Tractability and Practicality in Soft Real-Time Stochastic Analysis
Rui Liu, Alex Mills, and James Anderson

15:30-16:00 Break

16:00-17:30 Session 11: Wireless Sensor Networks II
Gemini: A Non-Invasive, Energy-Harvesting True Power Meter
Brad Campbell and Prabal Dutta

CapNet: A Real-Time Wireless Management Network for Data Center Power Capping
Abusayeed Saifullah, Sriram Sankar, Jie Liu, Chenyang Lu, Ranveer Chandra and Bodhi Priyantha
Wi-Sleep: Contactless Sleep Monitoring via WiFi Signals
Xuefeng Liu, Jiannong Cao, Shaojie Tang and Jiaqi Wen

17:30-17:40 Closing Remarks