

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

Arne Hamann, Goran Frehse, Sophie Quinton, and Matthias Wöhrle

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 Splet, 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