

CPSWeek 2014

April 14 - 17, 2014

Berlin, Germany

Program



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CPSWeek

14.-17. April 2014, Berlin



HiCoNS, HSCC, ICCPS, IPSN, RTAS

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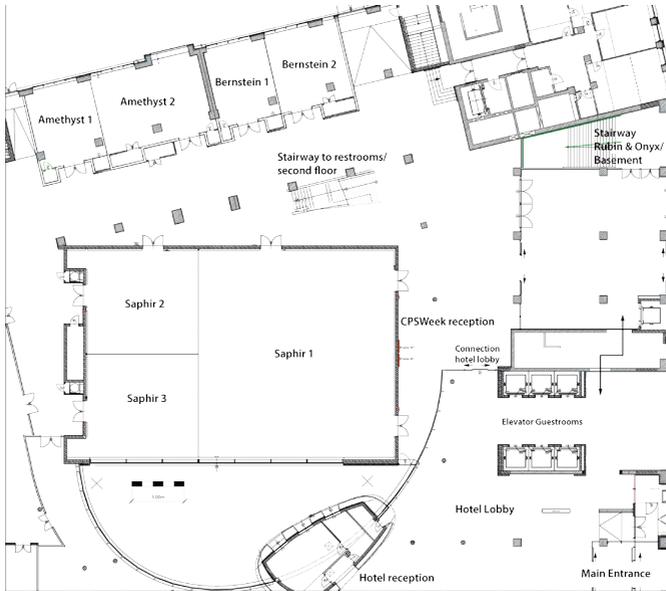


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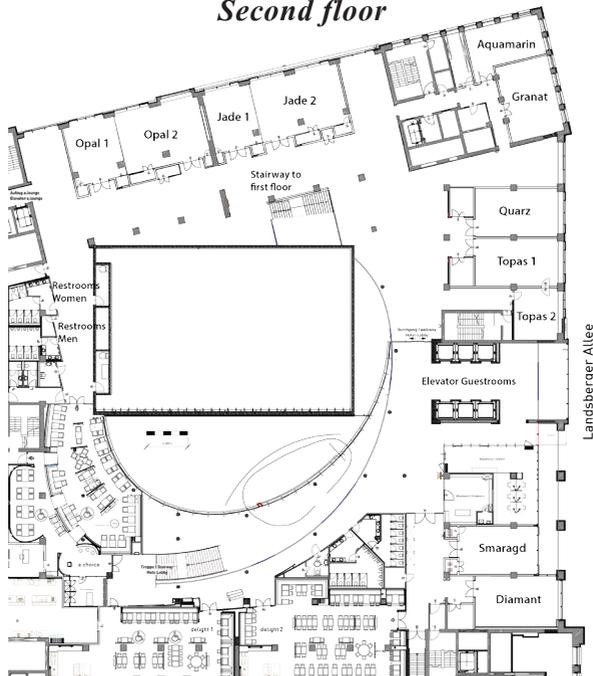


Floor Plan

First floor (EG)



Second floor



Floor Plan Basement



Industrial Exhibition Tuesday - Thursday

You will find a small exhibition by industrial companies, associations and research projects in the Foyer of the first floor (Foyer EG).

Exhibitors: OFFIS e.V., Germany; Esterel Technologies GmbH; GE Global Research, United Technologies Research Centre Ireland, Limited; Centro di Competenza ICT-SUD Srl (Tuesday before lunch only); ARTEMIS Industrial Association (Wednesday only)

WiFi

To get WiFi access, please scan for available network and connect to: **andels_Hotel_Berlin**
Open your web browser and enter the following log-in data:

Log-in: **CPSWeek2014**

Password: **Berlin**

Program - Sunday, April 13th
Microsoft/IPSN Localization Competition, Preparation Day

- 09:00-17:00 *Registration*
- 09:00-17:00 *Microsoft/IPSN Localization Competition Preparation*
Room: Saphir 2 and 3, Foyer EG

Program - Monday, April 14
Workshops (W) and Tutorials (T)

- 08:00-18:00 *Registration*
- 08:00-09:00 *Welcome coffee, Foyer EG*
- 09:00-17:00 *Microsoft/IPSN Localization Competition*
Room: Saphir 2 and 3, Foyer EG
- 09:00-11:00 *W1, W2, W3, W4, W5, W6, W7, W8, W10, T4*
- 11:00-11:30 *Coffee break, Foyer EG*
- 09:00-11:00 *W1, W2, W3, W4, W5, W6, W7, W8, W10, T4*
- 13:00-14:00 *Lunch, Restaurant Delight*
- 14:00-16:00 *W1, W2, W3, W4, W5, W6, W7, W9, W10, T2, T3*
- 16:00-16:30 *Coffee break, Foyer EG*
- 16:30-18:00 *W1, W2, W3, W4, W5, W6, W7, W9, W10, T2, T3*

Program - Monday, April 14

Workshops (W) and Tutorials (T)

Overview workshops

W1: Modeling and Simulation of Cyber-Physical Energy Systems (MSCPES)

Room: Smaragd

W2: CPS 20 years from now – how to get there: vision and challenges (CYPHERS)

Room: Granat

W3: 1st International Workshop on Applied veRification for Continuous and Hybrid Systems (ARCH 2014)

Room: Opal 2

W4: Fourth Workshop on Design, Modeling and Evaluation of Cyber Physical Systems (CyPhy'14)

Room: Jade 2

W5: 5. Medical Cyber-Physical Systems Workshop (MedicalCPS)

Room: Amethyst

W6: Workshop on Adaptive and Reconfigurable Embedded Systems (APRES'2014)

Room: Diamant

W7: 5th International Workshop on Networks of Cooperating Objects for Smart Cities 2014 (UBICITEC 2014)

Room: Quarz

W8: First International Workshop on Design Space Exploration of Cyber-Physical Systems (IDEAL)

Room: Topas 1 (co-located with W10)

W9: International Workshop on Robotic Sensor Networks

Room: Bernstein

W10: International Workshop on Emerging Ideas and Trends in Engineering of Cyber-Physical Systems (EITEC' 14)

Room: Topas 1 (co-located with W8)

Overview tutorials

T2: Developing Embedded/Real-Time and Cyber-Physical Systems: Functional Reactive Programming, RTL-based

Room: Opal 1

T3: Single Core Equivalent (SCE) Architecture Framework for Safety Critical Multicore Systems

Room: Jade 1

T4: On the Design of CPS using Arbitrated Network Control Systems

Room: Jade 1

Program - Tuesday, April 15 Morning

- 07:30-08:30 *Welcome coffee, Foyer EG*
- 08:30-10:00 *Plenary - Session Chair: John Lygeros, Room: Rubin*
- 08:30 *Welcome*
- 08:45 *A Cyber-Enabled Grid of the Future*
Ian A. Hiskens
- 09:50 *Best Paper Award HSCC*
- 10:00 *Coffee break, Foyer EG*

HiCoNS: *Monitoring and Estimating* - Session Chair: Michael Lemmon, Room: Amethyst

- 10:30 *Resilient Multidimensional Sensor Fusion Using Measurement History*
Radoslav Ivanov, Miroslav Pajic, Insup Lee
- 11:00 *Fundamental Limits of Nonintrusive Load Monitoring*
Roy Dong, Lillian Ratliff, Henrik Ohlsson, S. Shankar Sastry
- 11:30 *Resilient Distributed Parameter Estimation in Heterogeneous Time-Varying Networks*
Heath LeBlanc, Firas Hassan

HSCC: *Piecewise affine and switched linear systems* - Session Chair: Pavithra Prabhakar, Room: Onyx

- 10:30 *Computation of Piecewise Affine Terminal Cost Functions for Model Predictive Control*
Florian D. Brunner, Mircea Lazar, Frank Allgöwer
- 11:00 *Stabilizing Discrete-Time Switched Linear Systems*
Atreyee Kundu, Debasish Chatterjee
- 11:30 *An LQ Sub-Optimal Stabilizing Feedback Law for Switched Linear Systems*
Pierre Riedinger, Jean-Claude Vivalda
- 12:00 *State-Feedback Stabilization of Discrete-Time Piecewise Affine Systems*
Sihan Xiong, Ji-Woong Lee

ICCPS: *Energy and vehicles CPS*, Session Chair: Sayan Mitra, Room: Saphir 1

- 10:30 *Reconfiguration-Assisted Charging in Large-Scale Lithium-ion Battery Systems*
Liang He, Linghe Kong, Siyu Lin, Shaodong Ying, Yu Gu, Tian He and Cong Liu
- 11:00 *Low-Power Architecture for High Frequency Sensor Acquisition in Many-DOF UAVs*
Renato Mancuso, Or Dantsker, Marco Caccamo and Michael Selig. A
- 11:30 *Real-Time Battery Thermal Management for Electric Vehicles*
Eugene Kim, Jinkyu Lee and Kang G. Shin
- 12:00 *Synthesis and Verification of Motor- Transmission Shift Controller for Electric Vehicles*
Hongxu Chen and Sayan Mitra

Program - Tuesday, April 15 Morning

IPSN: *All Things Sensors* - Session Chair: Akos Ledeczki, Room: Rubin

- 10:30 *A System for Fine-Grained Remote Monitoring, Control and Pre-Paid Electricity Service in Rural Microgrids*
Maxim Buevich, Dan Schnitzer, Anthony Rowe, Tristan Escalada, Arthur Jacquiau-Chamski
- 11:00 *Aquatic Debris Monitoring Using Smartphone-Based Robotic Sensors*
Yu Wang, Guoliang Xing, Jianxun Wang, Xiabo Tan, Xiaoming Liu, Rui Tan, Xiangmao Chang
- 11:30 *Airplanes Aloft as a Sensor Network for Wind Forecasting*
Ashish Kapoor, Eric Horvitz, Zachary Horvitz, Spencer Laube
- 12:00 *Using Humans as Sensors: An Estimation-theoretic Perspective*
Dong Wang, Md Tanvir Amin, Shen Li, Tarek Abdelzaher, Chenji Pan, Lance Kaplan, Siyu Gu, Hengchang Liu, Charu C. Aggarwal, Raghu Ganti, XinLei Wang, Prasant Mohapatra, Boleslaw Szymanski Hieu Le

RTAS: *Software Architectures and Systems* - Session Chair: Frank Mueller, Room: Saphir 2 and 3

- 10:30 *The Multi-Resource Server for Predictable Execution on Multi-core Platforms*
Rafia Inam, Nesredin Mahmud, Moris Behnam, Thomas Nolte, Mikael Sjödin
- 11:00 *Towards Certifiable Adaptive Reservations for Hypervisor-based Virtualization*
Stefan Groesbrink, Luis Almeida, Mario de Sousa and Stefan M. Petters
- 11:30 *FJOS: Practical, Predictable, and Efficient System Support for Fork/Join Parallelism*
Qi Wang, Gabriel Parmer
- 12:00 *Safer Sloth: Efficient, Hardware-Tailored Memory Protection*
Daniel Danner, Rainer Müller, Wolfgang Schröder-Preikschat, Wanja Hofer, Daniel Lohmann

12:30-13:30 **N² Women Event**

Open to all female participants of CPSWeek

Interactive session with talks and discussions on challenges faced by women, specifically in academia.

Guest Speaker: Prof. Marija D. Ilic: *Things never quite turn out the way you plan it...maybe better?*

Room: Quartz

(Lunch will be provided.)

- 12:30 *Lunch, Restaurant Delight*

Program - Tuesday, April 15

Afternoon Session I

HiCoNS: *Invited Talk* - Session Chair: Xenofon Koutsoukos, Room: Amethyst

- 13:30 *A Passivity Framework for Modeling and Mitigating Attacks on Networked Control Systems*
Radha Poovendran
- 14:30 *Q & A*

HSCC: *Stochastic Hybrid Systems* - Session Chair: Benoît Caillaud, Room: Onyx

- 13:30 *Bisimilar Symbolic Models for Stochastic Control Systems Without State-Space Discretization*
Majid Zamani, Ilya Tkachev, Alessandro Abate
- 14:00 *Stochastic Reachability Based Motion Planning for Multiple Moving Obstacle Avoidance*
Nick Malone, Kendra Lesser, Meeko Oishi, Lydia Tapia
- 14:30 *Timely Monitoring of Partially Observable Stochastic Systems*
A. Prasad Sistla, Miloš Žefran, Yao Feng, Yue Ben

ICCPs: *Works-in-Progress* - Session Chair: Mohammad Al Faruque, Room: Saphir 1

- 13:30 *Five minutes per presenter*

IPSN: *Sensors Can Tell* - Session Chair: Wen Hu, Room: Rubin

- 13:30 *One Meter to Find Them All - Water Network Leak Localization Using a Single Flow Meter*
IySwarya Narayanan, Anand Sivasubramaniam, Arunchandar Vasam, Venkatesh Sarangan
- 14:00 *Non-invasive Respiration Rate Monitoring Using a Single COTS TX-RX Pair*
Ossi Kaltiokallio, Huseyin Yigitler, Riku Jäntti, Neal Patwari
- 14:30 *Identifying Drug (Cocaine) Intake Events from Acute Physiological Response in the Presence of Free-living Physical Activity*
Syed Monowar Hossain, Amin Ahsan Ali, Md. Mahbubur Rahman, Santosh Kumar, Emre Ertin, David Epstein, Ashley Kennedy, Kenzie Preston, Annie Umbricht, Yixin Chen

RTAS: *Scheduling I* - Session Chair: Harini Ramaprasad, Room: Saphir 2 and 3

- 13:30 *Schedulability Tests for Tasks with Variable Rate-Dependent Behaviour under Fixed Priority Scheduling*
Robert I. Davis, Timo Feld, Victor Pollex, Frank Slomka
- 14:00 *Real-Time Scheduling under Fault Bursts with Multiple Recovery Strategy*
Mohammad A. Haque, Hakan Aydin, Dakai Zhu
- 14:30 *Hiding Memory Latency Using Fixed Priority Scheduling*
Saud Wasly, Rodolfo Pellizzoni
- 15:00 *Coffee break, Foyer EG*

Program - Tuesday, April 15

Afternoon Session II

HiCoNS: *Application Security* - Session Chair: Heath LeBlanc, Room: Amethyst

- 15:30 *Understanding the Security of Interoperable Medical Devices using Attack Graphs*
Curtis Taylor, Krishna K. Venkatasubramanian, Craig Shue
- 16:00 *Resilient Distributed Consensus for Tree Topology*
Mark Yampolskiy, Yevgeniy Vorobeychik, Xenofon Koutsoukos, Peter Horvath, Janos Sztipanovits, Heath LeBlanc
- 16:30 *A Module for Anomaly Detection in ICS Networks*
Matti Mantere, Mirko Sallio, Sami Noponen

HSCC: *Hybrid system modeling* - Session Chair: Jens Oehlerking, Room: Onyx

- 15:30 *A Type-based Analysis of Causality Loops in Hybrid Systems Modelers*
Albert Benveniste, Timothy Bourke, Benoît Caillaud, Bruno Pagano, Marc Pouzet
- 16:00 *A Hyperdense Semantic Domain for Hybrid Dynamic Systems to Model Different Classes of Discontinuities*
Pieter J. Mosterman, Gabor Simko, Justyna Zander, Zhi Han
- 16:30 *Quasi-Dependent Variables in Hybrid Automata*
(End: Sergiy Bogomolov, Christian Herrera, Marco Muñoz, Bernd Westphal, Andreas Podelski
17:00)
- 18:30 *Panel Session: The role of robustness in hybrid systems*
Moderated by Martin Fränzle, Carl von Ossietzky Universität
Panelists: Antoine Girard, Pieter Mosterman, Maria Prandini, Stefan Ratschan, Thomas Stauner

ICCPS: *Keynote* - Session Chair: Michael Branicky, Room: Saphir 1

- 15:30 Keynote: *Cooperative cyber-physical systems with human in the loop*
Ruzena Bajcsy

IPSN: *Poster/Demo/Ph.D. Forum Madness*, Room: Rubin

- 15:30 *60 seconds per presenter*

RTAS: *Mixed Criticality Systems* - Session Chair: Sathish Gopalakrishnan, Room: Saphir 2 and 3

- 15:30 *Relaxing the Synchronous Approach for Mixed-Criticality Systems*
Eugene Yip, Matthew Kuo, Partha Roop, David Broman
- 16:00 *FlexPRET: A Processor Platform for Mixed-Criticality Systems*
Michael Zimmer, David Broman, Chris Shaver, Edward A. Lee
- 16:30 *Partitioned Scheduling of Multi-Modal Mixed-Criticality Real-Time Systems on Multiprocessor Platforms*
Dionisio de Niz and Linh Thi Xuan Phan

Program - Tuesday, April 15 Poster & Demo Exhibition

10:00-17:00 Set-up of Poster and Demo Exhibitions, Rooms: Foyer OG, Opal, Jade

If you are presenting a poster or demo, please contact registration during this time.
You will be assigned a place where you can hang your poster / setup your demo.
Set-up must be completed by 17:00.

17:00 **CPSWeek 2014 Poster & Demonstration Exhibition**, Foyer OG, Room: Opal, Jade

20:00 *Closing*

Program - Tuesday, April 15 Industrial Presentations

Within this session, major industrial sponsors of CPSWeek provide insights into their current and future tool developments for CPS design and the services they provide to academia and pertinent industry.
Room: Quarz

17:00 *Safety critical software design in the context of full system simulation*
Christian Schrader, Esterel

17:30 *Modeling Physical Systems for Control Design*
Steve Miller, The Mathworks

Program - Wednesday, April 16

Morning

- 08:00-08:30 *Welcome coffee, Foyer EG*
- 08:30-10:00 *Plenary - Session Chair: Werner Damm, Room: Rubin*
- 08:30 *Towards a Theory of Resilient Cyber Physical Systems*
S. Shankar Sastry
- 09:50 *Best Paper Award IPSN*
- 10:00 *Coffee break, Foyer EG*

HiCoNS: *Verification* - Session Chair: Sayan Mitra, Room: Amethyst

- 10:30 *A Formal Verification Approach To Revealing Stealth Attacks on Networked Control Systems*
Nikola Trcka, Alberto Speranzon, Shaunak Bopardikar, Mark Moulin
- 11:00 *Graph-Based Verification and Misbehavior Detection in Multi-Agent Networks*
Phillip Lee, Linda Bushnell, Radha Poovendran, Omar Saleh, Basel Alomair
- 11:30 *Safety Envelope for Security*
Ashish Tiwari, Bruno Dutertre, Dejan Jovanovic, Patrick Lincoln, John Rushby, Dorsa Sadigh, Sanjit Seshia

HSCC: *Stability and Control* - Session Chair: Mircea Lazar, Room: Onyx

- 10:30 *Stability Analysis of Large-Scale Networked Control Systems with Local Networks: A Hybrid Small-Gain Approach*
Dominicus P. Borgers, W.P. Maurice H. Heemels
- 11:00 *Model Reduction of Switched Affine Systems: A Method Based on Balanced Truncation and Randomized Optimization*
Alessandro Vittorio Papadopoulos, Maria Prandini
- 11:30 *Control to Facet for Polynomial Systems*
Christoffer Sloth, Rafael Wisniewski
- 12:00 *Simulation-guided Lyapunov Analysis for Hybrid Dynamical Systems*
James Kapinski, Jyotirmoy V. Deshmukh, Sriram Sankaranarayanan, Nikos Aréchiga

ICCPs: *Transportation CPS* - Session Chair: George Pappas, Room: Saphir 1

- 10:30 *Intersection Protocols for Autonomous Vehicles*
Reza Azimi, Gaurav Bhatia and Ragunathan Rajkumar. STIP: Spatio-Temporal
- 11:00 *Supervisor Synthesis in Model-Based Automotive Systems Engineering*
Joanna van de Mortel-Fronczak, Martin H.R. van der Heijden, RudolfG.M. Huisman and Michel Reniers
- 11:30 *Freeway Traffic Control from Linear Temporal Logic Specifications*
Samuel Coogan and Murat Arcak
- 12:00 *Real-Time Privacy-Preserving Model-Based Estimation of Traffic Flows*
Jerome Le Ny, Ahmed Touati and George Pappas
- 12:30 *Lunch, Restaurant Delight*

Program - Wednesday, April 16 Morning

IPSN: Testbeds - Session Chair: Pei Zhang, Room: Rubin

- 10:30 *Bringing up OpenSky: A Large-scale ADS-B Sensor Network for Research*
Matthias Schäfer, Matthias Wilhelm, Martin Strohmeier, Ivan Martinovic, Vincent Lenders
- 11:00 *TempLab: A Testbed Infrastructure to Study the Impact of Temperature on Wireless Sensor Networks*
Carlo Alberto Boano, Kay Roemer, Marco Zuniga, James Brown, Utz Roedig, Chamath Keppitiyagama
- 11:30 *RESONATE: Reverberation Environment Simulation for Improved Classification of Speech Models*
Robert F. Dickerson, Enamul Hoque, Philip Asare, Shahriar Nirjon, John A. Stankovic
- 12:00 *CSense: A Stream-Processing Toolkit for Robust and High-rate Mobile Sensing Applications*
Farley Lai, Syed Shabih Hasan, Austin Laugesen, Octav Chipara

RTAS: Memory and Cache Management - Session Chair: Gabriel Parmer, Room: Saphir 2 and 3

- 10:30 *Precise Shared Cache Analysis using Optimal Interference Placement*
Kartik Nagar, Y. N. Srikant
- 11:00 *Selfish-LRU: Preemption-Aware Caching for Predictability and Performance*
Jan Reineke, Sebastian Altmeyer, Daniel Grund, Sebastian Hahn, Claire Maiza
- 11:30 *Bounding Memory Interference Delay in COTS-based Multi-Core Systems*
Hyoseung Kim, Dionisio de Niz, Björn Andersson, Mark Klein, Onur Mutlu, Raj Rajkumar
- 12:00 *PALLOCC: DRAM Bank-Aware Memory Allocator for Performance Isolation on Multicore Platforms*
Heechul Yun, Renato Mancuso, Zheng-Pei Wu, Rodolfo Pellizzoni

Program - Wednesday, April 16

Afternoon Session I

HiCoNS: *Networked and Distributed Control Systems* - Session Chair: Peter Horvath, Room: Amethyst

- 13:30 *Distributed Switching Control to Achieve Resilience to Deep Fades in Leader-Follower Nonholonomic Systems*
Bin Hu, Michael Lemmon
- 14:00 *On the Cost of Differential Privacy in Distributed Control Systems*
Zhenqi Huang, Yu Wang, Sayan Mitra, Geir Dullerud
- 14:30 *Energy-Based Attack Detection in Networked Control Systems*
Emeka Eyisi, Xenofon Koutsoukos

HSCC: *Keynote Address* - Session Chair: John Lygeros, Room: Onyx

- 13:30 *Cells Driven by Computers: Long-term Model Predictive Control of Gene Expression in Yeast*
Gregory Batt
- Tool & Case Study Session - Chaired by Austin Jones, Boston University
- 14:30 *Component Based Design of Hybrid Systems: A Case Study on Concurrency and Coupling*
Eike Möhlmann, Astrid Rakow, Werner Damm
- 14:50 *JSR: A Toolbox to Compute the Joint Spectral Radius*
Guillaume Vankeerberghen, Julien M. Hendrickx, Raphaël M. Jungers
- 15:10 *A Bounded Model Checking Tool for Periodic Sample-and-hold Systems*
Gabor Simko, Ethan K. Jackson

ICCPs: *Best Paper Award Finalists session* - Session Chairs: Alex Bayen
and Michael Branicky, Room: Saphir 1

- 13:30 *DepSys: Dependency Aware Integration of Cyber-Physical Systems for Smart Homes*
Sirajum Munir and John A. Stankovic
- 14:00 *Opportunistic Scheduling of Control Tasks Over Shared Wireless Channels*
Konstantinos Gatsis, Miroslav Pajic, Alejandro Ribeiro and George Pappas
- 14:30 *Robustness of Attack-resilient State Estimators*
Miroslav Pajic, James Weimer, Nicola Bezzo, Paulo Tabuada, Oleg Sokolsky, Insup Lee and George J. Pappas
- 15:00 *Human-Inspired Multi-Contact Locomotion with AMBER2*
Huihua Zhao, Wenlong Ma, Michael Zeagler and Aaron Ames
- 15:30 *Coffee break, Foyer EG*

Program - Wednesday, April 16

Afternoon Session I

IPSN: Location, Location, Location - Session Chair: Anthony Rowe, Room: Rubin

- 13:30 *Lightweight Map Matching for Indoor Localisation Using Conditional Random Fields*
Zhuoling Xiao, Hongkai Wen, Andrew Markham, Niki Trigoni
- 14:00 *PiLoc: A Self-Calibrating Participatory Indoor Localization System*
Chengwen Luo, Hande Hong, Mun Choon Chan
- 14:30 *Energy Efficient GPS Acquisition with Sparse-GPS*
Prasant Misra, Wen Hu, Yuzhe Jin, Jie Liu, Amanda Souza de Paula, Niklas Wirstrom, Thiemo Voigt
- 15:00 *Optimal Sensor Placement and Measurement of Wind for Water Quality Studies in Urban Reservoirs*
Wan Du, Zikun Xing, Mo Li, Bingsheng He, Chua Hock Chye Lloyd, Haiyan Miao

RTAS: Industrial Session, Room: Saphir 2 and 3

- 13:30-15:30 *Automotive Ethernet real-time predictability*
Jan Seyler (Daimler AG)
- Deeply Embedded Real-Time Hypervisors for the Automotive Domain*
Gary Morgan (ETAS Ltd.)
- Guaranteed Services on the Network-on-Chip of a Manycore Processor*
Benoît Dupont de Dinechin (Kalray)
- Challenges of multicore processors in mixed-criticality systems with focus on temporal aspects*
Michael Paulitsch (EADS)
- Challenges in WCET prediction*
Florian Martin (AbsInt)
- Panel Discussion*
Moderated by Frank Mueller, NCSU

Program - Wednesday, April 16

Afternoon Session II

HiCoNS: *Invited Talk* - Session Chair: Saurabh Amin, Room: Amethyst

- 16:00 *From CRCs to Resilient Control Systems: The Slow Change from Reliability to Security*
Alvaro Cardenas
- 17:00 *Q & A*

HSCC: *Reachability* - Session Chair: Goran Frehse, Room: Onyx

- 16:00 *Inner Approximated Reachability Analysis*
Eric Goubault, Michel Kieffer, Olivier Mullier, Sylvie Putot
- 16:30 *Sampling-Based Approximation of the Viability Kernel for High-Dimensional Linear Sampled-Data Systems*
Jeremy H. Gillula, Shahab Kaynama, Claire J. Tomlin
- 17:00 *Proofs from Simulations and Modular Annotations*
Zhenqi Huang, Sayan Mitra

ICCPs: *Keynote* - Session Chair: Alex Bayen, Room: Saphir 1

- 16:00 *Keynote: Let's Get Physical: Adding Physical Dimensions to Cyber Systems*
Alberto Sangiovanni Vincentelli

IPSN: *Poster/Demo/Ph.D. Forum Madness*, Room: Rubin

- 16:00 *Indoor Localisation Competition Panel* - Chair: Dimitrios Lymberopoulos
- 17:15 *IPSN Business Meeting* - Chair: Feng Zhao

RTAS: *Timing Analysis* - Session Chair: Albert Cheng, Room: Saphir 2 and 3

- 16:00 *Trickle: Automated Infeasible Path Detection Using All Minimal Unsatisfiable Subsets*
Bernard Blackham, Mark Liffiton, Gernot Heiser
- 16:30 *WCET-Aware Dynamic Code Management on Scratchpads for Software-Managed Multicores*
Yooseong Kim, David Broman, Jian Cai, Aviral Shrivastava
- 17:00 *Architecture-Parametric Timing Analysis*
Jan Reineke, Johannes Doerfert
- 18:00 *CPSWeek Dinner*

Dinner Information

The CPSWeek Conference Dinner will take place on

April, 16th, 2014 at the Classic Remise, Berlin.

Address: Classic-Remise Berlin, Wiebestraße 36 - 37, 10553 Berlin

Attention: The **entrance** to the building is at **Sickingstraße 60**.

Website: <http://www.remise.de/Classic-Remise-Berlin.php>



How to go there:

Take the **bus in front of the andel's Hotel**. Buses are leaving from 6 p.m.

The way home:

The first bus is leaving at the restaurant back to andel's Hotel at 22:00. The last bus is leaving at 22:30.

Please have your dinner ticket with you (you will need it as bus ticket and as entrance ticket at the Classic Remise). Thank you very much!

Schedule:

- 18:00 *Busses leaving in front of andel's Hotel*
- 18:30 *Arrival and visit of the classic car center*
- 19:30 *Dinner speech of Dr. Werner Steinhögl, European Commission*
- 19:45 *Dinner starts*
- 22:00/22:30 *End, busses are leaving in front of the restaurant back to andel's Hotel*



CPSWeek

14.-17. April 2014, Berlin



HICoNS, HSCC, ICCPS, IPSN, RTAS

Program - Thursday, April 17 Morning

08:00-08:30 *Welcome coffee, Foyer EG*

08:30-10:00 *Plenary - Session Chair: Raj Rajkumar, Room: Rubin*

08:30 *The challenges for mechanisms and applications of cyber-physical Systems*
P. R. Kumar

09:40 *Best Paper Award ICCPS*

09:50 *Best Paper Award RTAS*

10:00 *Coffee break, Foyer EG*

HiCoNS: *Invited Session: On Improving CPS Resilience by Integrating Robust Control and Theory of Incentives - Session Chair: Larry Rohrbough, Room: Amethyst*

10:30 *Multilateral Trades in Interconnected Power Networks: A Local Public Goods Approach*
Erik Miehling, Demosthenis Teneketzis

11:00 *On the Assessment and Mitigation of Vulnerabilities in Urban Water Distribution Networks*
Lina Perelman (Technion-Israel Institute of Technology), Saurabh Amin

11:30 *The Intricacies of Cyber-Insurance for Large Scale Networks with Interdependent Security*
Galina A. Schwartz, S. Shankar Sastry

12:00 *Conference end*

HSCC: *Approximation and robustness - Session Chair: Jörg Raisch, Room: Onyx*

10:30 *On Approximation Metrics for Linear Temporal Model-Checking of Stochastic Systems*
Ilya Tkachev, Alessandro Abate

11:00 *Resilience to Intermittent Assumption Violations in Reactive Synthesis*
Rüdiger Ehlers, Ufuk Topcu

11:30 *Model Measuring for Hybrid Systems*
Thomas Henzinger, Jan Otop

12:00 *Abstracting and Refining Robustness for Cyber-Physical Systems*
Matthias Rungger, Paulo Tabuada

ICCPS: *Energy and networks CPS - Session Chair: Miroslav Pajic, Room: Saphir 1*

10:30 *Intersection Protocols for Autonomous Vehicles*
Hoang Hai Nguyen, Rui Tan and David K. Y. Yau

11:00 *A Formal Model of the Impact of Stealthy Attacks on Optimal Power Flow in Power Grids*
Mohammad Rahman, Ehab Al-Shaer and Rajesh Kavasseri

11:30 *Model-IQ: Uncertainty Propagation from Sensing to Modeling and Control in Buildings*
Madhur Behl, Truong Nghiem and Rahul Mangharam

12:00 *Real-Time Privacy-Preserving Model-Based Estimation of Traffic Flows*
Anitha Murugesan, Oleg Sokolsky, Sanjai Rayadurgam, Michael Whalen, Mats Heimdahl and Insup Lee

12:30 *Lunch, Restaurant Delight*

Program - Thursday, April 17 Morning

IPSN: *Networks* - Session Chair: Luca Mottola, Room: Rubin

- 10:30 *Lightweight Neighborhood Cardinality Estimations in Dynamic Wireless Sensor Networks*
Marco Cattani, Marco Zuniga, Andreas Loukas, Koen Langendoen
- 11:00 *Fast and Fine-grained Counting and Identification via Constructive Interference in WSNs*
Dingming Wu, Chao Dong, Shaojie Tang, Haipeng Dai, Guihai Chen
- 11:30 *P3: A Practical Packet Pipeline Using Synchronous Transmissions for Wireless Sensor Networks*
Manjunath Doddavenkatappa, Mun Choon Chan
- 12:00 *Cyclic Network Automata and Cohomological Waves*
Yiqing Cai, Robert Ghrist

RTAS: *H/W-S/W Interaction* - Session Chair: Rodolfo Pellizzoni, Room: Saphir 2 and 3

- 10:30 *Slack-Aware Opportunistic Monitoring for Real-Time Systems*
Daniel Lo, Mohamed Ismail, Tao Chen, G. Edward Suh
- 11:00 *A Network Virtualization Approach for Performance Isolation in Controller Area Network (CAN)*
Christian Herber, Andre Richter, Thomas Wild, Andreas Herkersdorf
- 11:30 *AHRB: A High-Performance Time-Composable AMBA AHB Bus*
Javier Jalle, Jaume Abella, Eduardo Quiñones, Luca Fossati, Marco Zulianello, Francisco J. Cazorla
- 12:00 *MAESTRO: A Time-Driven Embedded Testbed Architecture with Event-Driven Synchronization*
Sriram Karunagaran, Karuna P. Sahoo, Jayaraj Poroor, Masahiro Fujita

Program - Thursday, April 17

Afternoon Session I

HiCoNS: *Business Meeting*, Room: Amethyst

13:30 *Business Meeting*

HSCC: *Applications of hybrid systems* - Chaired by Pieter J. Mosterman, Room: Onyx

13:30 *Parameter Synthesis for Polynomial Biological Models*

Tommaso Dreossi, Thao Dang

14:00 *Compositionality Results for Cardiac Cell Dynamics*

Md. Ariful Islam, Abhishek Murthy, Antoine Girard, Scott A. Smolka, Radu Grosu

14:30 *Powertrain Control Verification Benchmark*

Xiaoqing Jin, James Kapinski, Jyotirmoy V. Deshmukh, Koichi Ueda, Ken Butts

15:00 *Dynamic Multi-Domain Bipedal Walking with ATRIAS through SLIP based Human-Inspired Control*

Ayonga Hereid, Shishir Kolathaya, Mikhail S. Jons, Johnathan Van Why, Jonathan W. Hurst, Aaron D. Ames

ICCPs: *CPS foundations/theory* - Session Chair: Michael Branicky, Room: Saphir 1

13:30 *Style-based Abstractions for Human Motion Classification*

Amy Lavier and Magnus Egerstedt

14:00 *Sacrificing a Little Space Can Significantly Improve Monitoring of Time-sensitive Cyber-physical Systems*

Konstantinos Gatsis, Miroslav Pajic, Alejandro Ribeiro and George Pappas

14:30 *CPS Security Panel*

Moderator: Dr. Patricia Muoio

Panelists: Dr. David Corman, Dr. Daniel Massey, Neil Mitchison, Prof. George J. Pappas, Matt Scholl

15:30 *Coffee break*, Foyer EG

Program - Thursday, April 17

Afternoon Session I

IPSN: *Let There Be Light* - Session Chair: Andrew Markham, Room: Rubin

- 13:30 *SIPS: Solar Irradiance Prediction System*
Stefan Achleitner, Tao Liu, Ankur Kamthe, Alberto E. Cerpa
- 14:00 *Face Recognition on Smartphones via Optimised Sparse Representation Classification*
Yiran Shen, Bo Wei, Wen Hu, Mingrui Yang, Simon Luce, Chun Tung Chou
- 14:30 *Visual Light Landmarks for Mobile Devices*
Niranjini Rajagopal, Patrick Lazik, Anthony Rowe
- 15:00 *Sensors with Lasers: Building a WSN Power Grid*
Naveed Anwar Bhatti, Affan A. Syed, Muhammad Hamad Alizai
- 15:30 *Closing Session*

RTAS: *Scheduling II* - Session Chair: Oleg Sokolsky, Room: Saphir 2 and 3

- 13:30 *Overhead-Aware Temporal Partitioning on Multicore Processors*
Risat Mahmud Pathan, Per Stenström, Lars-Göran Green, Torbjörn Hult, Patrik Sandin
- 14:00 *Scaling Global Scheduling with Message Passing*
Felipe Cerqueira, Manohar Vanga, Björn B. Brandenburg
- 14:30 *Has Energy Surpassed Timeliness?*
Marcus Völp, Marcus Hähnel, Adam Lackorzynski

Program - Thursday, April 17

Afternoon Session II

HSCC: *Timed systems and temporal specifications* - Session Chair: Martin Fränzle, Room: Onyx

- 16:00 *Temporal Logic Inference for Classification and Prediction from Data*
Zhaodan Kong, Austin Jones, Ana Medina Ayala, Ebru Aydin Gol, Calin Belta
- 16:30 *Energy and Mean-Payoff Timed Games*
Romain Brenguier, Franck Cassez, Jean-François Raskin
- 17:00 *Abstraction, Discretization, and Robustness in Temporal Logic Control of Dynamical Systems*
Jun Liu, Necmiye Ozay
- 17:30 *Edit Distance for Timed Automata*
Krishnendu Chatterjee, Rasmus Ibsen-Jensen, Rupak Majumdar

ICCPS: *Keynote - Session Chair: Alex Bayen, Room: Saphir 1*

- 16:00 Keynote: *Beyond the Internet of Things: Building a Programmable World*
Henry Tirri
- 17:30 *Closing Remarks*

RTAS: *Embedded Systems and Applications, Room: Saphir 2 and 3*

- 16:00 *Unifying DVFS and Offlining in Mobile Multicores*
Aaron Carroll and Gernot Heiser
- 16:30 *STCoS: Software-defined Traffic Control for Smartphones*
Yoshikazu Watanabe, Shuichi Karino, Yoshinori Saida, Gen Morita and Takahiro Iihoshi
- 17:00 *The ROSACE Case Study: From Simulink Specification to Multi/Many-Core Execution*
Claire Pagetti, David Saussière, Romain Gratia, Eric Noulard and Pierre Siron

CPSWeek

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