Monday: Predictability of HW/SW systems

09h00-10h15 Introduction
45’ Introduction (by organizers and then 1 min per participant)
30’ Dirk Ziegenbein (Robert Bosch GmbH - Renningen, DE)
   Breaking Automotive Traditions - Trends & Challenges

10h45-12h15 Dependability
15’ Albrecht Mayer (Infineon Technologies - München, DE)
   Sorry software, hardware matters for dependability
15’ Alessandra Nardi (Cadence - San Jose, US)
   Design-For-Safety For Automotive IC Design: Challenges And Opportunities
15’ Mark Lawford (McMaster University - Hamilton, CA)
   Domain Controllers, Autonomous Driving and Functional Safety, oh my!
15’ Thidapat Chantem (Virginia Polytechnic Institute - Arlington, US)
   Predictable and Reliable Automated Transportation Systems
30’ Discussion

14h00-15h30 Timing Predictability
15’ Alessandro Biondi (Sant’Anna School of Advanced Studies - Pisa, IT)
   Predictable Heterogeneous Computing for Next-generation Cyber-Physical Systems
15’ Chung-Wei Lin (National Taiwan University - Taipei, TW)
   Formal Verification on Finite-State Machines with Weakly-Hard Fault Models
15’ Zhu Qi (Northwestern University - Evanston, US)
   Leveraging Weakly-hard Constraints in Design and Adaptation
15’ Ignacio Sanudo Olmedo (University of Modena, IT)
   Paving the way towards predictable performance in multi-heterogeneous SoC, industrial
   problems and directions
30’ Discussion

16h00-17h00 Timing Predictability (cont’d)
15’ Masaki Gondo (eSOL - Tokyo, JP)
   Aggregation and integration of next-generation vehicle computing & OS technologies
15’ Rolf Ernst (TU Braunschweig, DE)
   Predictable Low-latency Data Services for Critical Applications – Challenges & Concepts
15’ Maximilian Odendahl (Silexica - Köln, DE)
   Performance testing platform for ROS- & Adaptive Autosar-based Autonomous Systems
15’ Discussion

17h00-18h00 3 Breakout Sessions
60’ ML in CPS, Modularization of Control Systems, Weakly-Hard Real-Time Models
Tuesday: Safe Integration of Heterogeneous Software Applications

09h00-09h15 Recap
15’ Report from Breakout Sessions

09h15-10h15 Automotive Software Architecture
15’ Philipp Obergfell (BMW AG - München, DE)
Centralized automotive software and system architectures
15’ Philipp Mundhenk (Autonomous Intelling Driving - München, DE)
Safe and Secure Software Platforms for Autonomous Driving
15’ Sebastian Steinhorst (TU München, DE)
Software Decentralization in Automotive System Architectures
30’ Discussion

10h45-12h15 Automotive Networks / Mobility & Society
15’ Wilfried Steiner (TTTech Computertechnik - Wien, AT)
The Role of Synchronized Time for Safe Integration of Heterogeneous Software Applications
15’ Lulu Chan (NXP Semiconductors - Eindhoven, NL)
Mixed Criticality Communication in Future In-Vehicle Architectures
15’ Baik Hoh, Seyhan Ucar (Toyota Motors North America - Mountain View, US)
Automotive Edge Computing Use-cases Inspired by Societal Problems
15’ Sophie Quinton (INRIA - Grenoble, FR)
Automotive System Design: Challenges of the Anthropocene
30’ Discussion

14h00-15h00 2 Breakout Sessions
60’ HW/SW Architecture Exchange, Cars and Climate Change

15h30-17h00 Automotive CPS
15’ Sabine Glesner (TU Berlin, DE)
Security and Correctness in the Face of Self-Adaptive Learning Automotive Systems
15’ Bart Besselink (University of Groningen, NL)
Towards a contract theory for physical systems
15’ Jyotirmoy Deshmukh (USC - Los Angeles, US)
Logic meets Autonomy
15’ Peter Gorm Larsen (Aarhus University, DK)
Possibilities using FMI-based Co-simulation for the Validation of Cyber-Physical Systems
30’ Discussion

17h00-18h00 3 Breakout Sessions
60’ ML in CPS (cont’d), SW Lifecycle, How to model HW and SW dependencies?
Wednesday: Programmability and Optimization of Emerging Heterogeneous Platforms

09h00-10h45 Programmability
15’  Jerónimo Castrillón-Mazo (TU Dresden, DE)
     The role of programming abstractions in automotive software
15’  Eduardo Quinones (Barcelona Supercomputing Center, ES)
     Parallel programming models for critical real-time embedded systems
15’  Roland Leißa (Universität des Saarlandes, DE)
     AnyDSL: A Partial Evaluation Framework for Programming High-Performance Heterogeneous Systems
15’  Lukas Sommer (TH Darmstadt, DE)
     DAPHNE - An automotive benchmark suite for parallel programming models on embedded heterogeneous platforms
45’  Discussion

11h15-12h15 2 Breakout Sessions
60’  Programming Model(s) vs. Execution Model(s), Uncertainty (Handling) in CPS

13h30-14h30 Closing
60’  Report of Breakout Sessions, feedback, next steps