
Department of Distributed and Dependable Systems

Offer

- Measurement of software performance and resource consumption, analysis of performance artefacts, integration of performance evaluation in software development processes
- Software model checking of C and Java, security analysis of PHP code
- Models and techniques for runtime self-adaptivity and self-awareness of CPS
- Methods and tools for network-precise simulations of large-scale deployment of smart CPS
- Communication models for opportunistic knowledge sharing in networks with limited connectivity
- Supporting complete development life-cycle of smart CPS (requirements engineering, development, testing, verification, deployment)
- Runtime platforms for analysis and experiments with smart CPS

Expertise

- Methods and models for systematic development of dependable software for software-intensive systems, Internet-of-Things (IoT) and smart cyber-physical systems (CPS)
- Modelling and assessing performance and resource consumption
- Verification and validation of software
- Software architectures and component-based modelling
- Goal-based requirements engineering
- Performance evaluation of computer systems

Tools, Platforms, Technologies

- DiSL – software framework for building dynamic program analysis tools through program instrumentation
- SPL – framework for evaluating and reflecting software performance in the context of agile software development
- Weverca – framework for analysis of PHP applications
- DEECo – Component model for Dependable Emergent Ensembles of Components
- IRM – Invariant Refinement method for designing CPS
- BEEN – a generic tool for automated benchmarking in a heterogeneous distributed environment
- SOFA 2, SOFA-HI – a hierarchical component-based system for software-intensive systems

Main Recent Projects

- From the cloud to the edge – smart IntegraTion and OPTimisation Technologies for highly efficient Image and Video processing Systems (FitOptiVis), ECSEL, 2018–2020
- Aggregate Farming in the Cloud (AFarCloud), ECSEL, 2018–2020
- Trust 4.0: Dataflow-based Privacy and Trust Modelling and Analysis in Industry 4.0 Systems, bi-lateral projects between Czech Republic (TAČR DELTA) and Germany (BMBF), 2018–2019
- Environmental Sensing To Act for a Better quality of Life: Smart Health (ESTABLISH), ITEA3/EUREKA project, 2017–2019
- Trans-European Research Training Network on Engineering and Provisioning of Service Based Cloud Applications (RELATE), FP7 Marie Curie Initial Training Network, 2011–2015
- Autonomic Service Component Ensembles (ASCENS), FP7 IP project, 2011–2015
- On-board software reference architecture consolidation, European Space Agency tender, 2011–2014

Partnerships and Collaborations

Academic Partners

- Karlsruhe Institute of Technology, Germany
- Chalmers, Sweden
- Mälardalen University, Sweden
- Ludwig-Maximilians-Universität, Germany

- University of Lugano, Switzerland
- TU Dresden, Germany
- TU Chemnitz, Germany
- KU Leuven, Belgium
- University of Stuttgart, Germany
- Universidad Politécnica de Madrid, Spain

Industry Partners

- Oracle
- Deutsche Telekom
- IMA
- Philips
- T-Mobile
- Volkswagen

Are you interested in this expertise?

Please contact CPPT UK

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Experts and their Department

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