OFFER

- 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 OPeration 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.

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

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