MOST INFLUENTIAL PAPER AWARDS

- JSS 2020: "The Palladio Component Model for Model-driven Performance Prediction" has been awarded as one of the four finalist for the Journal of Systems and Software's "Most Influential Paper Award“.

- ICPE 2020: "Automatically Improve Software Architecture Models for Performance, Reliability, and Costs Using Evolutionary Algorithms" by Anne Koziolek (Martens), Heiko Koziolek, Steffen Becker and Ralf Reussner has been awarded the „ICPE 10-years Most Influential Paper Award“.

- ICSA 2021: "PerOpteryx: automated application of tactics in multi-objective software architecture optimization" by Anne Koziolek, Heiko Koziolek, and Ralf Reussner has been awarded the „ICSA'21 10-years Most Influential Paper Award“.
STRATEGIC OUTLOOK

• Metamodel refactoring
  • Split metamodel in core and extensions
  • Major impact on all dependant tooling
MOTIVATION

• Changes in the PCM and its simulators get more and more complex (Co-Evolution)

• Not all features of the PCM are needed and used in all simulators like SimuLizar or SimuCom

• Ongoing works on the PCM or its simulators are mainly dealing with maintenance
MODULARIZATION OF THE PCM

• Split metamodel in dedicated features
• Introduce a layered architecture

➢ Feature configurations can be reused
  ➢ goal directed
➢ Deployment of features used in specific
  ➢ settings will be possible
➢ Simplified maintenance
MODULARIZING PCM AND SIMULATORS

• Split simulators in dedicated features
• Introduce a layered architecture

➢ Feature configurations can be reused goal directed
➢ Deployment of features used in specific settings will be possible
➢ Simplified maintenance
MODULARIZING PCM AND SIMULATORS
TIMELINE

until 2019: Development of a module concept for DSMLs like the PCM

until 2023: Development of a module concept for model-based analyses like SimuLizar

from 2023: Start of the research project FeCoMASS* in collaboration with RWTH Aachen

*https://fecomass.github.io/fecomass/
USAGE OF PALLADIO

• In SofDCar [1]
  • Elasticity of OTA Update Processes

• With SICK
  • Extension of CIPM [2] for Lua

[1] https://sofdcar.de
UNDER THE HOOD

• New Simulator *Slingshot*
  • Experimental composable and extensible simulator
  • Event-based $\rightarrow$ Scalable
  • Contract-based $\rightarrow$ Integrated verification and documentation facilities
  • Supports Basic-PCM elements, reconfigurations, measurements and (upcoming) planning

• New and Revisited Extractors
  • Extraction and continuous extraction, incremental model updates
  • Planned support for reliability properties by extracting failure probabilities
UNDER THE HOOD CONT.

• Confidentiality analyses
• Build system maintenance and new JDK (i.e. JDK 17) support