

informatik-Kolloquium

The Department of Computer Science of Johannes Kepler University Linz¹ together with the Austrian Society of Computer Science (ÖGI) invites to the following talk:

Florian Sattler
University of Passau

Analysing the Performance Evolution of Run-Time Configurable Systems

Wednesday, Jan 23rd, 2019, 10:00

Johannes Kepler University Linz, Computer Science Building S3 218

Abstract:

With the high number of configuration options available, finding an optimal configuration of a highly configurable system for a certain task is nearly impossible and even finding a good one is difficult. Often the impact a configuration option has on performance is not clear and even less known are the different performance interactions between configuration options. Furthermore, software systems change over time. An optimal performing configuration today could become an underperforming one tomorrow.

To improve our understanding of how highly configurable software systems evolve and to tackle this particular problem, we have been developing Variability-aware Region Analyzer (VaRA). VaRA uses control-flow and data-flow analyses to find regions in code that relate to run-time configuration options. It is built on the LLVM compiler infrastructure and can be used automatically during the compilation of a program. The identified configuration-dependent regions then get instrumented with measurement code to generate performance data that are linked to configuration options (i.e., their influence on performance). By executing a specific benchmark or test suite with a binary modified by VaRA, we can build a fine-grained performance model. Generating these models continuously for all revisions allows us to monitor performance changes over time.

About the Speaker:

Florian Sattler is a PhD student at the Software Engineering Department of the University of Passau (Prof. Sven Appel). His research interests are in Performance Analysis/Prediction, Evolution of Software, and Software Product Line Engineering.

Host: Dr. Manuel Rigger
Institute of Systems Software

¹The department consists of the following institutes:

Anwendungsorientierte Wissensverarbeitung (FAW), Bioinformatik, Computational Perception, Computer-Architektur, Computergrafik, Formale Modelle und Verifikation, Informationsverarbeitung und Mikroprozessortechnik (FIM), Integrierte Schaltungen, Pervasive Computing, Systems Engineering and Automation, Systemsoftware, Telekooperation