

Florian Sattler

Curriculum Vitae

Kapuzinerstraße 2d
Germany, Passau 94032
✉ vuld3r+hire@gmail.com



Education

- Currently pursuing **Doctoral degree in Computer Science, Saarland University.**
Grade: TBD
- February 2017 **Master of Science Computer Science, University of Passau.**
Grade: 1.1 with distinction

Doctoral Thesis

- Title *Understanding Variability in Space and Time: Analyzing Features and Revisions in Concert*
- Supervisors Prof. Dr.-Ing. Sven Apel
- Description Variability that arises throughout the software development process, for example, through code changes or features, makes not only software projects and their development hard to understand for researchers and developers but also analysis results hard to interpret. In this dissertation, I developed a theoretical and practical framework to automatically integrate different types variability information with state-of-the-art program analysis. Through this integration, static and dynamic analyses can automatically analyze variability and incorporate variability information into their results to make them easier to interpret for developers. For example, by setting the finding of a detected SQL-Injection into the socio-technical project context, one can automatically infer developers that are well suited to repair the detected vulnerability.

Experience

- Present **SC22/WG21 Member, ISO** — INTERNATIONAL ORGANIZATION FOR STANDARDIZATION.
- Nov 2022 Participating in the standardization process of C++ as a delegate for the C++ foundation. Furthermore, as **assistant chair of SG20** (Study Group: Education), I coordinating overall study-group work and contributing to guidance materials for developing better C++ education.
- Present **PhD Student, CHAIR OF SOFTWARE ENGINEERING, Saarland/Passau University.**
- March 2017 During my PhD, besides my primary research work, I lead the technical development of our LLVM-based research framework VARA. I was involved in various teaching activities, among other things, organizing seminars and our software development lab, and creating a new lecture about generic and generative programming. Furthermore, I set up, organized, and maintained the technical infrastructure of our chair.
- October 2018 **Software Engineering Intern, GOOGLE, Munich.**
- July 2018 Analysing the performance of V8's JAVASCRIPT parser to develop optimizations that reduce JAVASCRIPT parse time. A thorough performance analysis at the beginning of the internship uncovered various improvement opportunities. Overall, the optimizations developed throughout the internship where able to significantly reduce V8's parse time by up to 33%, on a wide range of different hardware platforms. Through the parse-time improvements, browsers that use V8, such as, chrome, spend less time on parsing JAVASCRIPT code when visiting a website.
- February 2017 **Student Research Assistant, CHAIR OF SOFTWARE ENGINEERING, University of Passau.**
- September 2016 Worked on integrating feature information into the LLVM compiler framework for building feature-targeted performance analyses.
- August 2016 **Student Research Assistant, CHAIR OF PROGRAMMING, University of Passau.**
- June 2013 Supporting work at the research project PolyJIT, building an LLVM based JIT that uses run-time information to do automatic parallelization and optimization of loop programs.

Awards

2018 Faculty award – Faculty of Computer Science and Mathematics, University of Passau

Skills

Administration

Advanced **Linux/Unix Administration (Debian, Gentoo):** *Managing overall infrastructure and compute clusters*
File/Database/Web server, Slurm, Networking, ...
- ANSIBLE - CONTAINERIZATION (Podman, Buildah)

Software Engineering

- Version Control Systems (Git) - Static Program Analysis
- Continuous Integration - Agile Development
- Data Analysis - Technical Project Management

Programming Languages

Basic SQL, JAVASCRIPT, BASH, ASSEMBLY, GO, RUST
Advanced PYTHON
Expert C++

Soft Skills

- Analytical Thinking - Self Learning
- Public Speaking - Attention to Detail
- Dependability - Teaching

Open-Source Contributions (Github)

V8, *Google's open source JAVASCRIPT engine.*

Highlights: Compressing object size of frequently used objects, refactoring variable proxy tracking, and speeding up character stream handling (example changes: 0210, D970, and B45F). For more details, see performance improvements tracking issue 7926.

Phasar, *a LLVM-based Static Analysis Framework.*

Highlights: Overall improving the IDESolver analysis speed and memory consumption, e.g., by improving how the solver stores and accesses flow and edge functions (example changes: B0CD or 67A5).

Invited Talks

2023 **Configuration-Aware Performance Analysis (Info, Video)** *at NHR@FAU*
2016 **Git: Better Commit than Sorry** *at IEEE SYP*

Teaching

Lectures

2021, 2022/23 **Generic and Generative Software Design** *Lecturer*

Software Lab and Exercises

2019, 2020 **Software-Praktikum** *Organizer/Reviewer*
2019/20 **Software Engineering** *Assistant*

Seminars

2021 **Systems Benchmarking** *Instructor*
2020/21 **Software Engineering at Google, Microsoft, Facebook and Co.** *Instructor*
2020 **Software Engineering 2.0: AI for SE** *Assistant*
2019 **Software Engineering Research in the Neuroage** *Assistant*

Languages

German **Mother tongue**

English **Full professional proficiency**

Conversationally fluent

Activities

July 2015 **Chairman, IEEE Student Branch Passau.**

July 2014 Organizing talks, events, and managing the day to day business of the student branch.

July 2014 **Vice Chairman, IEEE Student Branch Passau.**

July 2013 Assisting the current chairman in organizing talks, events and managing the day to day business of the student branch.

December 2018 **Member, IEEE.**

February 2012

Interests

- Science/Research
- Linux/Unix
- Performance Analysis
- Programming Education
- Programming Languages
- Compiler Technologies (LLVM)

Publications

Primary

Florian Sattler, Sebastian Böhm, Philipp Dominik Schubert, Norbert Siegmund, and Sven Apel. "SEAL: Integrating Program Analysis and Repository Mining". In: *ACM Trans. Softw. Eng. Methodol.* (2023).

Florian Sattler, Alexander von Rhein, Thorsten Berger, Niklas Schalck Johansson, Mikael Mark Hardø, and Sven Apel. "Lifting Inter-App Data-Flow Analysis to Large App Sets". In: *Autom. Softw. Eng.* 25.2 (2018), pp. 315–346.

Florian Sattler. "A Variability-Aware Feature-Region Analyzer in LLVM". Master's Thesis. Department of Informatics and Mathematics, University of Passau, 2017.

Secondary

Stefan Mühlbauer, **Florian Sattler**, Christian Kaltenecker, Johannes Dorn, Sven Apel, and Norbert Siegmund. "Analysing the Impact of Workloads on Modeling the Performance of Configurable Software Systems". In: *Proc. Int. Conf. Software Engineering (ICSE)*. IEEE, 2023, pp. 2085–2097.

Max Weber, Christian Kaltenecker, **Florian Sattler**, Sven Apel, and Norbert Siegmund. "Twins or False Friends? A Study on Energy Consumption and Performance of Configurable Software". In: *Proc. Int. Conf. Software Engineering (ICSE)*. IEEE, 2023, pp. 2098–2110.

Philipp Dominik Schubert, **Florian Sattler**, Fabian Schiebel, Ben Hermann, and Eric Bodden. "Modeling the Effects of Global Variables in Data-Flow Analysis for C/C++". In: *Proc. Int. Workshop Source Code Analysis and Manipulation (SCAM)*. IEEE, 2021, pp. 12–17.

Miguel Velez, Pooyan Jamshidi, **Florian Sattler**, Norbert Siegmund, Sven Apel, and Christian Kästner. "ConfigCrusher: Towards White-Box Performance Analysis for Configurable Systems". In: *Autom. Softw. Eng.* 27.3 (2020), pp. 265–300.

Andreas Simbürger, **Florian Sattler**, Armin Größlinger, and Christian Lengauer. *BenchBuild: A Large-Scale Empirical-Research Toolkit*. Tech. rep. MIP-1602. Faculty of Computer Science and Mathematics, University of Passau, 2016.