

Tina Maria Jung

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Education

Compiler Design Lab, Saarland University since 2017

- ▶ PhD student position
- ▶ I am exploring the possibilities a compiler has to ensure memory safety for unsafe languages. For this I use static program analysis in combination with run-time instrumentation. A main focus of this work is to keep the overhead low and the compatibility to existing code and libraries high. In terms of the C-language, the focus is to look at different kinds of undefined behavior, classify the possibilities they offer to attack a system and define how to handle them.

Graduate School of Computer Science, Saarland University since 2016

- ▶ Member of the graduate school
- ▶ Scholarship holder for the PhD preparatory phase

Saarland University, Saarbrücken, Germany since 2011

- ▶ Bachelor's Degree in CS with minor in Psychology
- ▶ Bachelor's Thesis at Compiler Design Lab: A Hybrid Approach for Parametric Memory Dependence Analysis
- ▶ Currently in the Graduate School preparatory phase

Gymnasium Hermeskeil (Sec. School), Hermeskeil, Germany 2002 – 2011

- ▶ Majors: English, Chemistry and Computer Science
- ▶ Winner of the price for the best female computer science student awarded by the Max Planck Institute for Informatics Saarbrücken
- ▶ Winner of the Informatik-Biber price in 2010
- ▶ Qualification in Latin

Academic Activities

Organizer of the 2017 EuroLLVM Conference 2017

- ▶ Organizer of the EuroLLVM 2017 Developers' Meeting in Saarbrücken together with the LLVM Foundation
- ▶ 258 attendees from 23 different countries
- ▶ The conference organization included planning the talk schedule, organizing the social event at ironworks Völklingen, advertise the conference, communicate with speakers and participants, organize technical equipment and tshirts, as well as lunch and coffee breaks.
- ▶ 46 presentations in form of keynotes, technical talks, lightning talks, a student research competition, hacker's labs, birds of a feathers and posters

Lecturer Assistant since 2017

- ▶ SS 17: Programming II
- ▶ As a lecturer assistant I designed exercise sheets, tests and programming projects for 440 registered students.

Teaching Assistant 2011 – 2014

- ▶ SS 14: Tutor in Programming for Engineers and Programming II
- ▶ WS 13/14: Tutor for the Software Design Lab
- ▶ WS 12/13: Tutor for Programming I
- ▶ SS 12: Tutor for the mathematical preparation course for the computer science freshmen

- ▶ WS 11/12: Tutored preparation for the re-exam in Programming I (while taking the course myself)
- ▶ The Tutor jobs included giving tutorials, correcting assignments or grading tests and exams, and supporting people with individual problems

Employments 2011 – 2012

- ▶ WS 11/12: Working at Max Planck Institute for Informatics (as a follow up to the Forschungstage Informatik 2011)

Skills

Technical

- ▶ C++: experienced, used in coursework (programming lecture, automatic planning, compiler construction) and in my bachelor's thesis
- ▶ Python: experienced, learned as first programming language at school, used in some coursework (generating software tests) and private projects
- ▶ Java, Latex: intermediate, used in some coursework (programming lectures, software design lab)

Social

- ▶ Spoken & written languages: German (native), English (proficient)
- ▶ Additional education in methodology and didactics for tutors, mediator course
- ▶ Various free tutoring jobs in mathematics

Projects

C Memory Safety since 2016

- ▶ Investigation in the main problems that occur when making C memory safe: run-time overheads, proving 'full' memory safety, compatibility to existing code and libraries
- ▶ Trying to understand and close the gap between the compiler communities and security communities approaches to memory safety
- ▶ First steps: Improving the run-time of LLVM's ASAN by proving checks in-bounds

WCET Analysis 2016

- ▶ Investigated in how cache related preemption delays affect worst case execution time
- ▶ Implemented in the LLVMTA framework of the Real-Time and Embedded Systems Lab, Saarland University

A Hybrid Approach to Parametric Memory Dependence Analysis 2015

- ▶ Bachelor's Thesis
- ▶ Memory dependence analysis instrumenting the polyhedral model to describe accessed memory regions
- ▶ Static flow and context sensitive analysis
- ▶ Implemented as an extension to LLVM

Work Experience **Employments** 2007 – 2011

- ▶ Multiple jobs in rotating shift work during summer holidays