

Tina Maria Jung

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Education

Compiler Design Lab, Saarland University since 2017

- ▶ PhD candidate
- ▶ I am exploring different methods for a compiler to ensure memory safety for unsafe languages. My current focus is the usage of static program analysis in combination with run-time instrumentation. A main goal of this work is to keep the overhead low and the compatibility to existing code and libraries high. For the C language, we 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

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

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

Academic Activities

Reviewer for the 2019 EuroLLVM Conference 2019

- ▶ I wrote 17 reviews on SRCs, Technical Talks, Lightning Talks, BoFs and Posters

Organizer of the 2017 EuroLLVM Conference 2017

- ▶ Organizer of the EuroLLVM 2017 Developers' Meeting in Saarbrücken together with the LLVM Foundation
- ▶ The conference organization included planning the talk schedule, organizing the social event at the ironworks Völklingen, advertise the conference, communicate with speakers and participants, organize technical equipment and T-shirts, as well as lunch and coffee breaks.
- ▶ 258 attendees from 23 different countries
- ▶ 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 19: Seminar on Programming Languages and Compilers for Machine Learning, Programming II (Tetris and Compiler projects)
- ▶ SS 18: Seminar on Memory Safety
- ▶ SS 17: Programming II (organization, exercise sheets, tests, Pacman project)
- ▶ As a lecturer assistant I designed exercise sheets, tests and programming projects for 440 registered students.
- ▶ Seminars require to find a good selection of papers for the students to read, advise them on the assigned papers, and help them to get a holistic view on the seminar topic.

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: Research assistant 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), my bachelor's thesis and during my PhD
- ▶ Python: experienced, learned as first programming language at school, used in some coursework (generating software tests), private projects and my PhD
- ▶ 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 voluntary tutoring jobs in mathematics

Projects

C Memory Safety since 2016

- ▶ Investigating challenges for C memory safety: run-time overhead, proving 'full' memory safety, compatibility to existing code and libraries
- ▶ Understand and close the gap between the compiler communities and security communities approaches to memory safety
- ▶ Ongoing work on an optimization for compiler-based memory safety instrumentations (implemented in C++, using LLVM and the integer set library ISL)

WCET Analysis 2016

- ▶ Investigated how cache related preemption delays affect worst case execution time
- ▶ Implementation in the LLVMTA (LLVM Timing Analysis) 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
- ▶ Flow and context sensitive static analysis
- ▶ Implemented in C++, using LLVM and the integer set library ISL

Work Experience **Employments** 2007 – 2011

- ▶ Multiple jobs in rotating shift work during summer holidays at Bilstein and Reiter Engineering