Tina Maria Jung

Saarland Informatics Campus E1 3, Rm 403, 66123 Saarbrücken, Germany
+49 (0) 681 / 302 57522– t.jung@cs.uni-saarland.de

Education

Saarland University, Saarbrücken, Germany — since 2011

- PhD candidate at the Compiler Design Lab advised by Sebastian Hack:
  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.
- Member of the graduate school, scholarship holder for the PhD preparatory phase.
- Bachelor's degree in CS with minor in Psychology.

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 in 2011, winner of the Informatik-Biber prize in 2010.

Academic Activities

Program Committee (PC) memberships and Reviewer Positions 2019 – 2021

- PC member and reviewer of the 2021 Workshop on LLVM in Parallel Processing.
- PC member and reviewer of the ECOOP 2020 Doctoral Symposium.
- Reviewer for the 2019 EuroLLVM Conference: 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 Saarbücken together with the LLVM Foundation.
- Tasks included: planning the talk schedule, organizing the social event, advertising the conference, communicating with speakers and participants.

Lecturer Assistant 2017 – 2020

- Programming II Lecture (2017, 2019, 2020)
- Seminars on Memory Safety and Programming Languages and Compilers for Machine Learning.
- As a lecturer assistant I designed exercise sheets, tests, and programming projects for 440+ registered students.
- Seminars require selecting 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

- Tutor for Programming I, Programming II, Programming for Engineers, Software Design Lab, giving the mathematical preparation course for the computer science freshmen, and a re-exam preparation course in Programming I.
- The Tutor jobs included giving tutorials, correcting assignments or grading tests and exams, and supporting people with individual problems.

Employments 2011 – 2012

- Research assistant at Max Planck Institute for Informatics

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 coursework (generating software tests), private projects and my PhD.
- Latex: learned during my studies for handing in assignments, used in my Bachelor's Thesis and during my PhD.
- Java: intermediate, used in coursework.

Social

- Spoken and written languages: German (native), English (proficient).
- Additional education in methodology and didactics for tutors, mediator course.

Projects

C Memory Safety — since 2016

- Investigating challenges for C memory safety: run-time overhead, levels memory safety that can be proven, compatibility to existing code and libraries.
- Understand and close the gap between the compiler communities and security communities approaches to memory safety.
- PICO, an optimization for compiler-based memory safety instrumentations.
- Technologies: C++, LLVM, ISL, Python, C, CMake

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
- Used in *Experimental Evaluation of Cache-Related Preemption Delay Aware Timing Analysis*. In WCET 2018. D. Shah, S. Hahn, and J. Reineke
- Technologies: C++, LLVM

A Hybrid Approach to Parametric Memory Dependence Analysis — 2015

- Bachelor's Thesis
- A static analysis instrumenting the polyhedral model to describe accessed memory regions (a flow and context-sensitive analysis), effectively computing memory footprints for programs.
- Technologies: C++, LLVM, ISL, Python, C, CMake

Work Experience

Employments — 2007 – 2011

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