



Dipl.-Ing. David Leopoldseder BSc.

CONTACT

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Austria

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WORK EXPERIENCE

Institute for System Software, Johannes Kepler University, Linz, Austria.

Researcher

Doing a PhD on Graal, a JIT compiler for Java.

March 2017 - Present

Oracle Labs

Member of Technical Staff

Working on Graal, a JIT compiler for Java.

April 2016 - Feb 2017

Institute for System Software, Johannes Kepler University, Linz, Austria.

Student Researcher

Working on "Graal AOT JS", a Java bytecode to JavaScript compiler which is built on-top of the Graal VM.

March 2014 - March 2016

Institute for Microprocessor Technology, Johannes Kepler University, Linz, Austria.

Tutor for the course "Applied Operating Systems"

February 2014 - July 2014

Institute for Pervasive Computing, Johannes Kepler University, Linz, Austria.

Tutor for the course "Software Development 1"

October 2013 - February 2013

ekey biometric systems

Internship Microprocessor Programming

Design and implementation of a bare metal driver for a fingerprint swipe sensor. Bachelor thesis „Driver Development for a Fingerprint Swipe Sensor: Incorporating Upek's TCS4H into the AT91SAM9G20“

July 2013 - October 2013

Institute for Microprocessor Technology, Johannes Kepler University, Linz, Austria.

Tutor for the course "Applied Operating Systems"

February 2013 - July 2014

Institute for Pervasive Computing, Johannes Kepler University, Linz, Austria.

February 2013 - July 2014

EDUCATION

Doctoral Studies in Computer Science: Software Engineering

March 2017 - Present

Johannes Kepler University, Linz, Austria.

Doing a PhD on Graal, a Java JIT Compiler.

Master Studies in Computer Science: Software Engineering

Oktober 2014 - March 2016

Johannes Kepler University, Linz, Austria.

Personal emphasis on Compiler Construction and VMs.

Master Thesis: "Graal AOT JS - A Java bytecode to JavaScript compiler".

Passed with distinction.

Bachelor Studies in Computer Science

2011 - 2014

Johannes Kepler University, Linz, Austria.

Bachelor Thesis: "Driver Development for a Fingerprint Swipe Sensor: Incorporating Upek's TCS4H into the AT91SAM9G20"

Grammar School

2002 - 2010

BG / BRG Freistadt

"Bundesrealgymnasium".

Closed with general qualification for university entrance.

Primary School

1998 - 2002

Volksschule Weitersfelden

PUBLICATIONS

- Leopoldseder, D.; Stadler, L.; Rigger, M.; Würthinger, T.; Mössenböck, H. **A Cost Model for a Graph-Based Intermediate Representation in a Dynamic Compiler** In. VMIL 2018.
- Leopoldseder, D.; Schatz, R.; Stadler, L.; Rigger, M.; Würthinger, T.; Mössenböck, H. **Fast-Path Loop Unrolling of Non-Counted Loops to Enable Subsequent Compiler Optimizations**. ManLang 2018.
- Rigger, M.; Marr, S.; Leopoldseder, D.; Mössenböck, H.; **An Analysis of x86-64 Inline Assembly in C Programs**. Proceedings of the 13th ACM SIGPLAN /SIGOPS International Conference on Virtual Execution Environments (VEE'18).
- Leopoldseder, D.; Stadler, L.; Würthinger, T.; Eisl, J.; Simon, D.; Mössenböck, H.; **Dominance-based Duplication Simulation (DBDS) - Code Duplication to Enable Compiler Optimizations**. International Symposium on Code Generation and Optimization, 2018.
- Leopoldseder, D.: **Simulation-based code duplication for enhancing compiler optimizations**. SPLASH

Companion 2017 Proceedings Companion of the 2017 ACM SIGPLAN International Conference on Systems, Programming, Languages, and Applications: Software for Humanity, 2017

- Prokopec, A.; Leopoldseder, D.; Duboscq, G.; Würthinger, T.: ***Making Collection operations optimal with aggressive JIT compilation.*** SCALA 2017 Proceedings of the 8th ACM SIGPLAN International Symposium on Scala, 2017
- Leopoldseder, D.; Stadler, L.; Wimmer, C.; Mössenböck H.: ***Java-to-JavaScript Translation via Structured Control Flow Reconstruction of Compiler IR.*** 11th Dynamic Language Symposium, October 27, 2015, Pittsburgh, Pennsylvania, USA.

TALKS

- Virtual Machine Meetup 2015 (VMM'15).
Title: „Graal Javascriptify. Compiling Java AOT to JavaScript“
- Dynamic Language Symposium 2015 (DLS'15), Pittsburgh, Title: "Java-to-JavaScript Translation via Structured Control Flow Reconstruction of Compiler IR"
- Virtual Machine Meetup 2017 (VMM'17). Title: "Code Duplication in the Graal Compiler"
- SPLASH'17 Doctoral Symposium. Title: "Simulation-based Code Duplication"
- SPLASH'17 SRC: Title: "Simulation-based Code Duplication".
- International Symposium on Code Generation and Optimization 2018 (CGO'18): "Dominance-based Duplication Simulation (DBDS) - Code Duplication to Enable Compiler Optimization"
- ManLang'18. Title: "Fast-Path Loop Unrolling for Non-Counted Loops to Enable Subsequent Compiler Optimizations"

CONFERENCE ATTENDANCE

- VMM'15
- SPLASH'15
- Google Compiler PhD Summit'15
- VMM'16
- VMM'17
- SPLASH'17
- Google Compiler PhD Summit'17
- CC/CGO'18
- ManLang'18

AWARDS

- 2016: Leistungsstipendium JKU, Linz
- 2017: 1. Price ACM Student Research Competition Graduate Track @ SPLASH'17 <https://2017.splashcon.org/track/splash-2017-Student-Research-Competition#SRC-Participants>
- 2018: CGO'18 Best Paper Candidate

THESIS ADVISOR

- Master Thesis
 - Truffle CIL (In Progress)
- Bachelor Thesis
 - Truffle CUDA (In Progress)
 - Graal Collections (In Progress)
 - Truffle Python Subprocess Module (In Progress)

TEACHING

- SS'17 Praktische Informatik 2, JKU Linz, SSW
- WS'17 Übersetzerbau 1, JKU Linz, SSW
- SS'18 Praktische Informatik 2, JKU Linz, SSW
- SS'18 Praktikum aus Software Entwicklung 2, JKU Linz, SSW
- SS'18 Dynamic Compilation and Run.time Optimization in Virtual Machines, JKU Linz, SSW
- WS'18 Übersetzerbau 1, JKU Linz, SSW
- WS'18: MS Thesis Seminar

EDUCATIONAL ACTIVITIES

- Frauen in die Technik 2018 (FIT'18): Mentoring of female students over the content of computer science studies at the Institute for System Software.
- Lange Nacht der Forschung 2018: "Wie wird aus 0 und 1 ein Computerprogramm?"

PROFESSIONAL ACTIVITIES

- VMM'18: Program Committee Member
- TACO 2018: Sub-Reviewer