Dipl.-Ing.
Mario **Preishuber**

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Interests

Professional	Agile software development, knowledge transfer, software architecture, artificial intelligence, collaboration robotic, in-memory databases, concurrent data structures, distributed systems
Personal	Motorcycles, handicrafts, beach volleyball, traveling, motor sports

Specials

Mar 2023 **Certified Scrum Master**
DasScrumTeam AG (Certificate)

Dec 2017 **Google Inc.** Munich, Germany
Participant
I was invited to Google's 5th Compiler and Programming Language Summit in 2017. I presented my work on statistical metrics of memory accesses and their impact on a program's performance.

Oct 2017 – Nov 2017 **Wirtschaftsförderungsinstitut der Wirtschaftskammer (WIFI) Österreich** Austria
Trainer
I prepared and taught the class *HTML5, CSS3 & Responsive WebDesign* for a business client of WIFI Salzburg.

Education

Apr 2018 – Oct 2014 **Dipl.-Ing.** *University of Salzburg*, Austria
Department of Computer Science

> Jan 2016 – Aug 2015 **Visiting student** *Ecole Polytechnique Federale de Lausanne (EPFL)*, Switzerland
> School of Computer and Communication Sciences
> Major: Computer Science

Sep 2014 – Oct 2011 **B.Eng.** *University of Salzburg*, Austria
Department of Computer Science

Jun 2009 – Sep 2004 *HTL (technical high school)*, Braunau am Inn, Austria
Major: Design and communication technologies

Employment

Since Apr 2018 **Dental Manufacturing Unit GmbH** Austria
Software Engineer
I am working on core software components, such as new firmware features, computer vision features, inter-device communication (e.g. CANopen), and IoT. Using programming languages Python, C#, C, C++ (in combination with Qt). Additionally, I coordinate internal and external projects.

Sep 2011 May 2010 **DVT-Daten-Verarbeitung-Tirol GmbH** Austria
Software Engineer
I designed and implemented web applications based on a J2EE architecture and the Apache Struts 2.0 framework.

Advanced Trainings

Mar 2023 **Certified Scrum Master**
DasScrumTeam AG (Certificate)

Jan 2023 **Clean Code Development and Unit Testing Deep Dive**
Konzept Informationssysteme GmbH (Certificate)

Dec 2021 **Programming with C++**
techTrain GmbH (Certificate)

Dec 2021 **QT Online Training**
Oct 2021 The QT Company (Certificate)

Nov 2021 **Specialization: Leading People and Teams**
May 2020 Coursera (Certificate)

Feb 2020 **Specialization: TensorFlow in Practice**
Oct 2019 Coursera (Certificate)

May 2019 **Nanodegree: Computer Vision**
Feb 2019 Udacity (Certificate)

Theses

Mar 2018 May 2017 **Master thesis, Towards cache-optimal address allocation: How slow is your code?** *University of Salzburg*, Austria
Advisor: Prof. Christoph Kirsch
The aim of my master thesis is to improve the performance of a program by optimizing the cache utilization. I defined metrics that characterize the performance of a program based on its memory accesses and implemented an execution engine for computing their quantities.

Jun 2014 Mar 2014 **Bachelor thesis, JavaScript Heap Analysis Using Real-World Web Applications** *University of Salzburg*, Austria
Advisor: Prof. Christoph Kirsch
My bachelor thesis was done in the course of the ACDC4JS project. The aim of my thesis is to facilitate the development of more realistic workloads for benchmarking the memory management of JavaScirpt virtual machines. I have analyzed the heap models of real-world web application for this purpose.

Jun 2009 **Diploma thesis, SEER** *HTL (technical high school)*, Austria
Sep 2008 My diploma thesis was done in cooperation with Sony (DADC) Austria. The topic of my thesis is developing software for analyzing and filtering large amounts of e-mail traffic sent to customer support. Together wit another student, I developed SEER, a sophisticated embedded e-mail responder.

Projects

Jan 2015 **pseudOS, Advanced Operating Systems Class** *University of Salzburg*, Austria
Oct 2014 *Student*
The aim is to develop the major components of an operating system based on PintOS, an educational operating system. I developed an efficient scheduling algorithm, user-programs, virtual memory, and a UNIX-like filesystem. The resulting system is called pseudOS.

Aug 2014 **ACDC4JS[1], Computational Systems Group** *University of Salzburg*, Austria
Aug 2013 *Project Staff*
The project was done in cooperation with Google Munich. The purpose of ACDC4JS is to analyze the efficiency of the garbage collector in JavaScript virtual machines, especially Google's V8. I worked on research and development of measurement tools. The analyses of heap models, using automated user interactions was also part of my work.

Jun 2013 **PCCC, Compiler Construction Class** *University of Salzburg*, Austria
Mar 2013 *Student*
The goal is to develop a self-compiling compiler. I developed a fully functional compiler for a non-trivial subset of C together with another student. Target is a DLX-based emulator. My self-compiling compiler is called PCCC and was the best project of the class.

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Publications

[1] M. Aigner, T. Hütter, C.M. Kirsch, A. Miller, H. Payer, and **M. Preishuber**. "ACDC-JS: Explorative Benchmarking of JavaScript Memory Management". In: *Proc. Dynamic Languages Symposium (DLS)*. ACM, 2014. DOI: 10.1145/2661088.2661089. Click here for PDF file.

[2] A. Haas, T. Hütter, C.M. Kirsch, M. Lippautz, **M. Preishuber**, and A. Sokolova. "Scal: A Benchmarking Suite for Concurrent Data Structures". In: *Proc. International Conference on Networked Systems (NETYS)*. LNCS. Springer, 2015. DOI: 10.1007/978-3-319-26850-7_1. Click here for PDF file.

[3] T. Hütter, **M. Preishuber**, J. Hämmerle-Uhl, and A. Uhl. "Weaknesses in Security Considerations Related to Chaos-Based Image Encryption". In: *Information and Communications Security*. Springer International Publishing, 2016, pp. 278–291. DOI: 10.1007/978-3-319-50011-9_22.

[4] **M. Preishuber**, T. Hütter, S. Katzenbeisser, and A. Uhl. "Depreciating Motivation and Empirical Security Analysis of Chaos-Based Image and Video Encryption". In: *IEEE Transactions on Information Forensics and Security* 13.9 (2018), pp. 2137–2150. DOI: 10.1109/TIFS.2018.2812080. Click here for PDF file.

Internships

Sep 2012 – Aug 2012 **SIGMATEK GmbH & Co KG** Austria
Summer Intern
I developed a Wireshark plugin in C and C++ for the Nested Varan Frames protocol, where I extended an existing NSIS installer.

Aug 2008 – Jul 2008 **ppedv AG** Germany
Summer Intern
I implemented new features and a new design for the homepage, blog-engine and forum of the company using .Net technologies.

Awards

Jun 2009 **Innovation & Wirtschaft in OÖ** OÖ. Technologie- und Marketinggesellschaft m.b.H
The SEER project won the first price in the category at the Innovation & Wirtschaft in OÖ. A competition for innovative high school students, supported by the government of Upper Austria.

Others

Mar 2010 – Oct 2009 **Mandatory military service** Austria