Mario **Preishuber** Dipl.-Ing.

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Interests

Professional	Team development, agile software development processes
	Software architecture, artificial intelligence, collaboration robotic
	In-memory databases, concurrent data structures, distributed systems
Personal	Motorcycles, making things yourself, beach volley ball, traveling, motor sports

Specials

Dec 2017	**Google Inc.** Munich, Germany
	Participant
	I was invited to Google's 5th Compiler and Programming Language Summit 2017. I presented my work on the statistical metrics of memory accesses and their impact on a program's performance.
Jan 2016	**Visiting student** *Ecole Polytechnique Federale de Lausanne (EPFL)*, Switzerland
Aug 2015	School of Computer and Communication Sciences
	Major: Computer Science

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)

Education

Apr 2018 Oct 2014	**Dipl.-Ing.** *University of Salzburg*, Austria Department of 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 Developer* I'm working on core software components, such as computer vision features, inter device communication, and IoT. Additionally, I coordinate internal and external projects. Used programming languages are C#, Python and C/C++ (in combination with Qt).
Sep 2012 Aug 2012	**SIGMATEK GmbH & Co KG** Austria *Summer Intern* I developed a Wireshark plugin for the Nested Varan Frames protocol. I extended an existing NSIS installer. Used programming languages were C and C++.
Sep 2011 May 2010	**DVT-Daten-Verarbeitung-Tirol GmbH** Austria *Software Developer* I designed and implemented web applications based on a J2EE architecture and the Apache Struts 2.0 framework.
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.

Self-Employment

2017	**Dental Manufacturing Unit GmbH** Austria *Software Developer* I developed, implemented and validated new firmware features based on existing hardware components. Used programming languages C, C#, and Python.
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.

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 have 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 course of ACDC4JS. The aim of my thesis is to aid 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 Sep 2008	**Diploma thesis, SEER** *HTL (technical high school)*, Austria My diploma thesis was done in cooperation with Sony (DADC) Austria. The topic of my thesis is developing software for analyzing and filtering large volume of email traffic sent to customer support. I have developed the so-called SEER (Sophisticated Embedded Email Responder) for this purpose with another student.

Projects

Jan 2015 Oct 2014	**pseudOS, Advanced Operating Systems Class** *University of Salzburg*, Austria *Student* The aim is to develop the major components of an operating system based on PintOS. I have developed a more efficient scheduling algorithm, user-programs, virtual memory, and a UNIX like filesystem. My operating system is called pseudOS.
Aug 2014 Aug 2013	**ACDC4JS[1], Computational Systems Group** *University of Salzburg*, Austria *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 have 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 Mar 2013	**PCCC, Compiler Construction Class** *University of Salzburg*, Austria *Student* The goal is to develop a self-compiling compiler. I have developed a full functionally compiler in 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.

Awards

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

Others

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

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.