

Mario Preishuber Dipl.-Ing.

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Interests

- | | |
|--------------|---|
| Professional | Computer vision, artificial intelligence, deep learning, collaboration robotic
In-memory databases, memory analysis, performance analysis
Concurrent data structures, distributed systems |
| Personal | Beach volley ball, traveling, motor sports |

Specials

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| Dec 2017 | Google Inc. Munich, Germany
<i>Participant</i>
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
Aug 2015 | Visiting student <i>Ecole Polytechnique Federale de Lausanne (EPFL)</i> , Switzerland
School of Computer and Communication Sciences
Major: Computer Science |

Education

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| Feb 2020 | Specialization <i>Coursera</i> , Online |
| Oct 2019 | TensorFlow in Practice (Certificate) |
| May 2019 | Nanodegree <i>Udacity</i> , Online |
| Feb 2019 | Computer Vision (Certificate) |
| Apr 2018 | Dipl.-Ing. <i>University of Salzburg</i> , Austria |
| Oct 2014 | Department of Computer Science |
| Sep 2014 | B.Eng. <i>University of Salzburg</i> , Austria |
| Oct 2011 | Department of Computer Science |
| Jun 2009 | <i>HTL (technical high school)</i> , Braunau am Inn, Austria |
| Sep 2004 | Major: Design and communication technologies |

Employment

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| Since
Apr 2018 | Dental Manufacturing Unit GmbH Austria
<i>Software Developer</i>
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# and Python. |
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- Sep 2012 **SIGMATEK GmbH & Co KG** Austria
 Aug 2012 *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 **DVT-Daten-Verarbeitung-Tirol GmbH** Austria
 May 2010 *Software Developer*
 I designed and implemented web applications based on a J2EE architecture and the Apache Struts 2.0 framework.
- Aug 2008 **ppedv AG** Germany
 Jul 2008 *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 **Wirtschaftsförderungsinstitut der Wirtschaftskammer (WIFI)**
 Nov 2017 **Österreich** Austria
Trainer
 I prepared and taught the class *HTML5, CSS3 & Responsive WebDesign* for a business client of WIFI Salzburg.

Theses

- Mar 2018 **Master thesis, Towards cache-optimal address allocation: How slow is your code?** *University of Salzburg, Austria*
 May 2017 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 **Bachelor thesis, JavaScript Heap Analysis Using Real-World Web Applications** *University of Salzburg, Austria*
 Mar 2014 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 JavaScript 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 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 **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. 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 **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 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 **PCCC, Compiler Construction Class** *University of Salzburg, Austria*
Mar 2013 *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.