Dr. sc. Gerd Zellweger

CONTACT
INFORMATION

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EDUCATION

ETH Zürich, Switzerland

Doctor of Sciences ETH Zurich **2013 − 2017**

- Dissertation "On the Construction of Dynamic and Adaptive Operating Systems"
- Advisor: Professor Timothy Roscoe

Master of Science in Computer Science **2009 − 2012**
- Focus: Distributed Systems
- Advisor: Professor Timothy Roscoe

Bachelor of Science in Computer Science **2006 − 2010**

PROFESSIONAL
EXPERIENCE

VMware, Research Group, Palo Alto, USA

Research Scientist **March 2018 − now**

Exploring operating systems design and implementation, networks and system software interaction with emerging hardware technologies.

ETH Zürich, Zürich, CH

Research Assistant **February 2013 − December 2017**

Doctoral student doing research on how to structure an OS for future multi and many-core systems. Teaching operating systems, networks, parallel- and systems programming to graduate and undergraduate students.

HP Labs, Palo Alto, USA

Research Associate **June 2015 − September 2015**

I worked in the systems research group where I designed, implemented and evaluated extensions to the virtual memory subsystem for a BSD derivative OS, to address problems occurring with huge memory capacities in high-end server systems.
Technologies: C, virtual memory systems

Microsoft Research, Redmond, USA

Research Intern **July 2014 − September 2014**

I collaborated with the Orleans team to work on the Orleans actor system, a distributed runtime for the cloud. I looked specifically at actor placement algorithms and developed new algorithms to improve the actor placement decisions and evaluated them in the cloud.
Technologies: C#, .NET, Azure Cloud, Orleans

sc-n.ch, Zürich, Switzerland

Software Engineer **February 2012 − February 2013**

Consultant working for a large insurance company (Java EE, IBM Websphere, Ant, XML, SOA).

Capgemini sd&m, Zürich, Switzerland

Working Student **September 2008 − December 2008**

PEER-REVIEWED
PUBLICATIONS
Igor Smolyar, Alex Markuze, Boris Pismenny, Haggai Eran, Gerd Zellweger, Austin Bolen, Liran Liss, Adam Morrison, Dan Tsafrir. "**IOctopus: outsmarting nonuniform DMA.**", *Conference on Architectural support for Programming languages and Operating systems (ASPLOS)*, Lausanne, CH, March 2020 [best paper award].

Gerd Zellweger, Denny Lin, Timothy Roscoe. "**So many performance events, so little time**", *Proceedings of the 7th Asia-Pacific Workshop on Systems (APSys)*, Hong Kong, China, August 2016.

Jana Giceva, Gerd Zellweger, Gustavo Alonso, Timothy Roscoe. "**Customized OS support for data processing**", *Proceedings of the 12th International Workshop on Data Management on New Hardware (DaMoN)*, San Francisco, USA, June 2016.

Jana Giceva, Gerd Zellweger, Gustavo Alonso, Timothy Roscoe. "**Basslet: an OS runtime for parallel data processing**", *Workshop on Multicore and Rack-scale Systems (MaRS)*, London, UK, April 2016 [extended abstract & talk].

Izzat El Hajj, Alexander Merritt, Gerd Zellweger, Dejan Milojicic, Reto Achermann, Paolo Faraboschi, Wen-mei Hwu, Timothy Roscoe, Karsten Schwan. "**SpaceJMP: Programming with Multiple Virtual Address Spaces**", *Proceedings of the 21th international conference on Architectural support for Programming languages and Operating systems (ASPLOS)*, Atlanta (GA), USA, April 2016 [HiPEAC paper award].

Simon Gerber, Gerd Zellweger, Reto Achermann, Kornilios Kourtis, Timothy Roscoe, Dejan Milojicic. "**Not Your Parents' Physical Address Space**", *Proceedings of the 15th Workshop on Hot Topics in Operating Systems (HotOS)*, Kartause Ittingen, May 2015.

Gerd Zellweger, Simon Gerber, Kornilios Kourtis, Timothy Roscoe. "**Decoupling Cores, Kernels, and Operating Systems**", *Proceedings of the 11th USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, Broomfield, USA, October 2014.

Gerd Zellweger, Adrian Schüpbach, Timothy Roscoe. "**Unifying synchronization and events in a multicore OS**", *Proceedings of the 3rd Asia-Pacific Workshop on Systems (APSys)*, Seoul, South Korea, July 2012.

PATENTS
Izzat El Hajj, Alexander Merritt, Gerd Zellweger, Dejan Milojicic. **Persistent virtual address spaces**, PCT/US2016/015661, submission pending, filed Jan. 29, 2016.

Izzat El Hajj, Alexander Merritt, Gerd Zellweger, Dejan Milojicic. **Versioning virtual address spaces**, PCT/US2016/015814, submission pending, filed Jan. 29, 2016.

Izzat El Hajj, Alexander Merritt, Gerd Zellweger, Dejan Milojicic. **Identifying object modifications**, PCT/US2016/015815, submission pending, filed Jan. 29, 2016.

Izzat El Hajj, Alexander Merritt, Gerd Zellweger, Dejan Milojicic, Reto Achermann. **Memory management with versioning of objects**, PCT/US2016/015839, submission pending, filed Jan. 29, 2016.

Izzat El Hajj, Alexander Merritt, Gerd Zellweger, Dejan Milojicic. **Switch process virtual address space**, PCT/US2015/049726, submission pending, filed Sept. 11, 2015.

PROJECTS

TEXercises

I was a co-founder of Texercises, a company that provides a collaborative online exercise database for all kinds of classes in science of nature and allows simple and quick generation of exercise sheets for teachers and students. I was responsible for the technical development of the product. Texercises was acquired by edTechLab AG in 2015.
Technologies: Python, Django, SQL, JavaScript, LaTeX, HTML

Barrelfish OS
`www.barrelfish.org`

The Barrelfish operating system is exploring how to structure an OS for future multi- and many- core systems motivated by the increasing amount of cores and diversity in computer hardware. I have contributed code to most areas of the system during my studies at ETH and I have written some of the core services and a few device drivers in the OS from scratch.
Technologies: C, Python, Haskell, x86, ARM

Open Source Software
`www.github.com/gz`

I enjoy collaborating on open source projects. I am the creator and maintainer of several open source libraries and programs, mainly written in Rust and Python.

TEACHING

I have been a teaching assistant at ETH for Systems Programming and Computer Architecture (2014, 2015, 2016), Parallel Programming (2014, 2015), Advanced Operating Systems (2014) and Computer Science for Biology and Pharmaceutical Sciences (2013). My duties involved weekly tutoring sessions with up to 30 students, devising and grading weekly exercises, midterm and end-term exams.

INVITED TALKS

April 2017: **VMware Research** invited talk on *"Implications of New and Future Hardware for Operating Systems"*
April 2017: **Apple CoreOS** invited talk on *"Implications of New and Future Hardware for Operating Systems"*
April 2017: **HPE Labs** invited talk on *"Implications of New and Future Hardware for Operating Systems"*
March 2017: **Microsoft Research** invited talk on *"Implications of New and Future Hardware for Operating Systems"*
March 2017: **Huawei Research** invited talk on *"Implications of New and Future Hardware for Operating Systems"*
January 2017: **ETH Zurich**, Industry Retreat talk on *"The Paradox of Choice in Multicore Performance Monitoring"*
April 2016: **ASPLOS conference** Lightning talk on *"SpaceJMP"*
January 2016: **ETH Zurich**, Industry Retreat talk on *"SpaceJMP"*
November 2015: **ETH Zurich**, Department Evaluation on *"Decoupling Cores Kernels and Operating Systems"*
October 2015: **NewOS Workshop**: On *"Applications for HPC, IoT and non-volatile memory"*
September 2015: **ETH Zurich**, Lunch Seminar on *"Multiple virtual address spaces"*
August 2015: **HP Labs** invited talk on *"Multiple virtual address spaces"*
January 2015: **ETH Zurich**, Industry Retreat talk on *"Decoupling Cores Kernels and Operating Systems"*
November 2014: **OSDI Conference** talk on *"Decoupling Cores Kernels and Operating Systems"*
September 2014: **ETH Zurich**, Seminar talk on *"Decoupling Cores Kernels and Operating Systems"*
March 2013: **ETH Zurich**, Seminar talk on *"Device Management in a Multicore OS"*

PROGRAMMING

I taught myself programming using PHP as a teenager. Currently I'm most comfortable using Python for scripting, C and Rust for low level programming and Java for everything in between. In addition, I have some experience programming in Haskell, Eiffel and C#.

SERVICE

Shadow PC EuroSys 2017

LANGUAGES

- German: Native language
- English: Fluent in reading and writing
- French: Basic knowledge

REFERENCES   *Available on request.*