Daniel **Schwyn**

PhD Student · Systems Researcher

Systems Group, ETH Zürich

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Education

ETH Zürich	*Zürich, Switzerland*
Doctor of Science (PhD) in Computer Science	*February 2019 - PRESENT*

- Research Focus: Declarative Power Management
- Advisor: Prof. Dr. Timothy Roscoe

ETH Zürich	*Zürich, Switzerland*
Master of Science (MSc) in Computer Science	*September 2015 - January 2018*

- Thesis: Hardware Configuration with Dynamically-Queried Formal Models
- Advisor: Prof. Dr. Timothy Roscoe

ETH Zürich	*Zürich, Switzerland*
Bachelor of Science (BSc) in Computer Science	*September 2011 - September 2015*

- Thesis: Implementation of a Smartphone-based Visible Light Communcation System using the Audiojack as a Communcation Frontend
- Advisor: Prof. Dr. Thomas Gross

Professional Experience

Systems Group, ETH Zürich	*Zürich, Switzerland*
Research Assistant	*February 2019 - PRESENT*

- Enzian: Trustworthy baseboard management firmware for the Enzian research computer
- Sockeye: Formal specifications for hardware as seen by software
- Barrelfish: Member of the core OS team working on integrating information from formal hardware models

Artificial and Human Intelligence Group, Siemens AG	*Berkeley (CA), USA*
Reasearch Engineering Intern	*March 2018 - September 2018*

- Implemented a prototype of an augmented reality application for an industrial use case
- Built demos for using semantic technologies to connect information sources
- Technologies: Unity, OPC UA, Z3, JavaScript, TypeScript

Last Minute Table GmbH	*Lenzburg, Switzerland*
CoFounder & Software Engineer	*April 2016 - May 2018*

- Online platform for revenue management for restaurants
- Frontend Developer
- Technologies: Angular, TypeScript

AdNovum AG	*Zürich, Switzerland*
Software Engineering Intern	*October 2014 - May 2015*

- iOS and Android Development
- Technologies: Objective C, Java, XCode, Eclipse, ANT

Wearable Computing Lab, ETH Zürich	*Zürich, Switzerland*
Android Developer	*February 2014 - May 2014*

- Implemented a new user interface for an app that helps patients with Parkinson's disease with gait problemss
- Redesigned the architecture of the existing prototype from ground up
- Ported the app to Google Glass

Publications

Enzian: An Open, General, CPU/FPGA Platform for Systems Software Research	*ASPLOS 2022*
David Cock, Abishek Ramdas, Daniel Schwyn, Michael Giardino, Adam Turowski, Zhenhao He, Nora Hossle, Dario Korolija, Melissa Licciardello, Kristina Martsenko, Reto Achermann, Gustavo Alonso and TimothyRoscoe	*March 2022*

2QoSM: A Q-Learner QoS Manager for Application-Guided Power-Aware Systems	*MCSoC 2021*
Michael J. Giardino, **Daniel Schwyn**, Bonnie Ferri and Aldo Ferri	*December 2021*

Generating Correct Initial Page Tables from Formal Hardware Descriptions *PLOS 2021*

Reto Achermann, David Cock, Roni Haecki, Nora Hossle, Lukas Humbel, Timothy Roscoe and **Daniel Schwyn** *October 2021*

Declarative Power Sequencing *ACM TECS*

Jasmin Schult, **Daniel Schwyn**, Michael Giardino, David Cock, Reto Achermann and Timothy Roscoe *September 2021*

A model-checked I^{2}C specification *SPIN 2021*

Lukas Humbel, **Daniel Schwyn**, Nora Hossle, Roni Häcki, Melissa Licciardello, Jan Schär, David Cock, Michael Giardino and Timothy Roscoe *August 2021*

`mmapx`: Uniform Memory Protection in a Heterogeneous World *HotOS 2021*

Reto Achermann, David Cock, Roni Häcki, Nora Hossle, Lukas Humbel, Timothy Roscoe and **Daniel Schwyn** *June 2021*

A Digital Companion for Air Travelers *MobileHCI 2020*

Kimberly García, **Daniel Schwyn** and Florian Michahelles *February 2020*

Secure Memory Management on Modern Hardware *arXiv:1911.08773*

Reto Achermann, Nora Hossle, Lukas Humbel, **Daniel Schwyn**, David Cock and Timothy Roscoe *September 2020*

CleanQ, a lightweight, uniform, formally specified interface for intra-machine data transfer *arXiv:1911.08773*

Roni Häcki, Lukas Humbel, Reto Achermann, David Cock, **Daniel Schwyn** and Timothy Roscoe *November 2019*

A Least-Privilege Memory Protection Model for Modern Hardware *arXiv:1908.08707*

Reto Achermann, Nora Hossle, Lukas Humbel, **Daniel Schwyn**, David Cock and Timothy Roscoe *August 2019*

From sound to sight: Using audio processing to enable visible light communication *GC Wkshps'14*

Stefan Schmid, **Daniel Schwyn**, Kaan Akşit, Giorgo Corbellini, Thomas R. Gross and Stefan Mangold *December 2014*

Student Mentoring Experience

Declarative Power Sequencing using a CPLD Bachelor's Thesis *ETH Zürich*

Manuel Hässig *February 2022*

Generating Power Management Code from Declarative Descriptions Bachelor's Thesis *ETH Zürich*

Linus U. Vogel *October 2021*

Characterization of Interrupt Handling in Board Management Controllers Bachelor's Thesis *ETH Zürich*

Tobais Oberdörfer *September 2021*

Optimizing Declarative Power Sequencing Master's Thesis *ETH Zürich*

Moritz Knüsel *September 2021*

Real-time Board Management using an FPGA Bachelor's Thesis *ETH Zürich*

Sarah Tröndle *April 2021*

Towards high-assurance Board Management Controller software Master's Thesis *ETH Zürich*

Cedric Heimhofer *March 2021*

A model-based approach to platform-level power and clock management Bachelor's Thesis *ETH Zürich*

Jasmin Schult *August 2020*

Teaching Experience

Advanced Operating Systems (263-3800-00L) *ETH Zürich*

Head Teaching Assistant *Spring Semester 2022*

Systems Programming and Computer Architecture (252-0061-00L) *ETH Zürich*

Head Teaching Assistant *Fall Semester 2021*

Advanced Operating Systems (263-3800-00L) *ETH Zürich*

Head Teaching Assistant *Spring Semester 2021*

Systems Programming and Computer Architecture (252-0061-00L) *ETH Zürich*

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Advanced Operating Systems (263-3800-00L) *ETH Zürich*

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Teaching Assistant *Fall Semester 2019*

Advanced Operating Systems (263-3800-00L) *ETH Zürich*

Head Teaching Assistant *Spring Semester 2019*

Extracurricular Activity

VBC Kanti Baden *Baden, Switzerland*

Volleyball Youth Coach *April 2010 - present*

Teaching Experience