David H. Schall

PhD Student · CPU Microarchitecture

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Education

University of Edinburgh
Edinburgh, United Kingdom

DOCTOR OF SCIENCE (PhD) IN COMPUTER SCIENCE
Jun 2020 - present (Exp. Jun 2024)

- Program: ICSA: Computer Architecture
- Supervisor: Dr. Boris Grot

University of Kaiserslautern
Kaiserslautern, Germany

MASTER OF SCIENCE (M.Sc.) IN ELECTRONICS AND INFORMATION TECHNOLOGY
Apr. 2017 - Mai 2019

- Specialization: Embedded Computing Systems
- Thesis: "Evaluation and Optimization of Memory Encryption and Integrity Protection", In cooperation with Arm Ltd., Cambridge, UK

Heilbronn University
Heilbronn, Germany

BACHELOR OF ENGINEERING (B.En.) IN ELECTRONICS AND INFORMATION TECHNOLOGY
Sep. 2013 - Mar 2017

- Specialization: Information technology
- Exchange semester in South Korea, KIT Kumoh National Institute of Technology, Gumi, South Korea

Skills

Programming	Python, C/C++, Golang, VHDL
Tools	gem5, Xilinx Vivado
Languages	German, English

Experience

Arm Research, Arm Limited
Cambridge, United Kingdom

MASTER THESIS AND INTERNSHIP
Sep. 18 - Mar. 19 and Feb. - July 2022

- Topic: Evaluation and Optimization of Memory Encryption and Integrity Protection.
- Modeling the encryption in gem5. Evaluation of system impact of encryption and integrity protection.
- Investigation and optimization of several hardware design features.
- Acquired skills: C/C++, Python and gem5

Microelectronic system design research group, University of Kaiserslautern
Kaiserslautern, Germany

RESEARCH ASSISTANT
Aug. 2017 - July 2018

- Development and investigation of hardware architectures for Turbo-Code Decoders
- Writing C++ software model for Turbo-Code Decoder for performance modeling.
- Implementation and synthesis of Decoder architecture in VHDL.
- Acquired skills: C/C++, VHDL, MATLAB and Xilinx Vivado

IDS Imaging Development Systems GmbH
Obersulm, Germany

BACHELOR THESIS
Sep. 2016 - Feb. 2017

- Title: DisplayPort IP-Core for industry cameras
- Development of a specialized DisplayPort IP-Core for industry cameras in VHDL, based on the Xilinx Artix7 FPGA.
- Acquired skills: VHDL, MATLAB Xilinx Vivado, Xilinx FPGA's

Bosch Engineering GmbH
Abstatt, Germany

INTERNSHIP AND WORKING STUDENT
Sep. 2016 - Feb. 2017

- Hard- and Firmware development for a motor engine controller test system
- Acquired skills: C/C++, Atmel Studio, PCB design, USB firmware

Elektro Braun GmbH
Bad Rappenau, Germany

APPRENTICESHIP IN ELECTRONICS ENGINEER FOR ELECTRICAL AND BUILDING SERVICES ENGINEERING
Sep. 2009 - Aug. 2012

Publications

Warming Up a Cold Front-end with Ignite   *MICRO 2023*

Dᴀᴠɪᴅ Sᴄʜᴀʟʟ, Aɴᴅʀᴇᴀs Sᴀɴᴅʙᴇʀɢ, Bᴏʀɪs Gʀᴏᴛ   *Oct. 2023*

Lukewarm Serverless Functions: Characterization and Optimization   *ISCA 2022*

Dᴀᴠɪᴅ Sᴄʜᴀʟʟ, Aʀᴛᴇᴍɪʏ Mᴀʀɢᴀʀɪᴛᴏᴠ, Dᴍɪᴛʀɪɪ Usᴛɪᴜɢᴏᴠ, Aɴᴅʀᴇᴀs Sᴀɴᴅʙᴇʀɢ, Bᴏʀɪs Gʀᴏᴛ   *Jun. 2022*
- IEEE MICRO TopPick's Honorable Mention

When Does Saving Power Save the Planet?   *HotCarbon, 2023*

Jᴀᴄᴋsᴏɴ Wᴏᴏᴅʀᴜꜰꜰ, Dᴀᴠɪᴅ Sᴄʜᴀʟʟ, Mɪᴄʜᴀᴇʟ FP O'Bᴏʏʟᴇ, Cʜʀɪsᴛᴏᴘʜᴇʀ Wᴏᴏᴅʀᴜꜰꜰ   *Jun. 2023*

Cryptographic Protection of Random Access Memory: How Inconspicuous can Hardening Against the most Powerful Adversaries be?   *Cryptology ePrint Archive*

Rᴏʙᴇʀᴛᴏ Aᴠᴀɴᴢɪ, Iᴏɴᴜᴛ Mɪʜᴀʟᴄᴇᴀ, Dᴀᴠɪᴅ Sᴄʜᴀʟʟ, Héᴄᴛᴏʀ Mᴏɴᴛᴀɴᴇʀ, Aɴᴅʀᴇᴀs Sᴀɴᴅʙᴇʀɢ   *2022*

Extracurricular Activity

vSwarm - Serverless Benchmarking Suite

Mᴀɪɴᴛᴀɪɴᴇʀ   *2022 - PRESENT*
- https://github.com/vhive-serverless/vSwarm

Ultimate Frisbee

Pʟᴀʏᴇʀ ᴀɴᴅ Cᴏᴀᴄʜ   *Jun. 2014 - PRESENT*
- Player in german national team (U20,U24 and Open) 2010-16
- Assistant coach of U24 german national team 2018-2020