Daniel Bin Schmid

Researcher & Computer Scientist.
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HIGHER EDUCATION

M.Sc. Informatics | Technical University of Munich (TUM)

Okt 2022 - Present | Munich, Germany | Current GPA: 1,3/1,0

- Specialisation: Machine Learning and Analytics
- Side specialisations: Databases and Information Systems, Robotics
- Research: Causality and Deep Learning (DL), DL Theory, Hardware Acceleration for DL

B.Sc. Media Informatics | University of Stuttgart

Okt 2018 - Aug 2022 | Stuttgart, Germany | GPA: 1,9/1,0

- Focuses: Brain-Computer-Interfaces, Computer Vision, Human-Computer-Interaction

HIGHLIGHTED PROJECTS

Causal Machine Learning: Generative AI & Causal Prediction | Research

Okt 2023 - Mar 2024 | Project Link

- Identifying own research question in a group of four selected students. Co-supervised by researcher from TUM CAMP and the Torr Vision Group (University of Oxford).
- Development of a method for generating images with a causal mechanism. The developed method brings together a causal VAE and a diffusion model (DDPM).
- Development of causally-inspired methods for more robust & explainable x-ray pathology classification.

Brain-Computer-Interfaces (BCIs): On-Device Training | Bachelor's thesis

Jan 2022 - Sep 2022 | GitHub Link

- Implemented machine learning training on a resource-constrained Smartwatch for preserving data privacy.
- Deployed deep transfer learning with EEGNet (a CNN for EEG processing) on own brain-waves.
- Development of methods for online learning with Hyperdimensional Computing (HDC).

Project Collection | Practicals

Apr 2021 - Mar 2024 | See GitHub and portfolio for details.

- Okt 2023 - Mar 2024: Reinforcement Learning for quadcopter control in drone racing, *GitHub link*
- Okt 2022 - Feb 2023: Handgesture recognition demo for the Tech Challenge, *GitHub link*
- Okt 2021 - Feb 2022: Saliency map prediction on graphic designs with the excellent team of *Perceptual UI*.
- Apr 2021 - Sep 2022: Brain-inspired computing python framework to facilitate research on HDC.

WORK EXPERIENCE

Research Assistant for Transformer Acceleration | TUM Chair of AI Processor Design (AI-Pro)

Apr 2023 - Apr 2024

- Leading small research team of three students; Co-advising two B.Sc. students on their thesis.
- Identifying own research questions in interactive sessions with advisor Prof. Amrouch (amrouch@tum.de)
- Exploiting sparsity; Fine-tuning; Quantization; RISC-V ISA design with Chipyard & Synopsis; C code for Transformers

MLOps Engineer | Maurer Electronics GmBH

Feb 2023 - Jul 2023

- Integration of ML model inference into existing C++ Computer Vision software. Model versioning and pipeline automation.

Teaching Assistant for theoretical computer science | FMI, Uni Stuttgart

Okt 2020 - Feb 2021

- Teaching 46 students in bi-weekly sessions, grading homeworks and granting exam permissions.

SKILLS

Programming Languages:
Python • C • C++ • Java • Chisel • Julia • Shell • SQL • C# • Verilog • Assembly • LaTeX • JavaScript
Tools & Frameworks:
PyTorch • TensorFlow • ROS2 • Chipyard • Docker • Microsoft Azure • AWS • Matlab • Linux • Git
Soft Skills: German (native) • English (C1)