Daniel Bin **Schmid**

Researcher · Computer Scientist

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Education

M.Sc. Informatics
*Current GPA: **1,3** /1,0*

Technical University of Munich (TUM)
Okt. 2022 - Present

- 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
*GPA: **1,9** / 1,0*

University of Stuttgart
Okt. 2018 - Aug. 2022

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

Highlighted Projects

Causal Machine Learning: Generative AI & Causal Prediction
*w/ **TUM Camp & Torr Vision Group***

10/23 - 03/24 | Project Link | TUM-DI-LAB Research Project in collaboration w/ University of Oxford
Lennart Bastian, Dr. Ashkan Khakzar

- In a group of four selected students, we **identified own research directions**.
- Developed **own method** for generating images with a causal mechanism by bringing together a causal VAE and a diffusion model (DDPM).
- Investigated causally-inspired methods for more robust & explainable x-ray pathology classification.

Reinforcement Learning (RL) for Quadcopter Control
*w/ AIR, **TUM***

10/23 - 04/24 | github.com/danielbinschmid/RL-pybullets-cf | Practical
Finn Suberkrüb, Prof. Berthold Bäuml

- Software development of full pipeline for drones, from state estimation to low-level control. Experimentation with RL from drone racing.

Brain-Computer-Interfaces: On-Device Training
*w/ STAR, **Uni Stuttgart***

01/22 - 09/22 | github.com/danielbinschmid/portable-bci | Bachelor's Thesis at University of Stuttgart
Dr. Paul Genssler, Prof. Hussam Amrouch

- 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.
- Developed **own methods** for online learning with Hyperdimensional Computing (HDC).

Project Collection

See GitHub and portfolio for details.

- 04/23 - 04/24: Researching **theoretical foundations of deep learning** with chair of TUM TFAI with special interest in Transformers.
- 10/22 - 02/23: Serverless distributed data processing on Microsoft Azure. GitHub Link.
- 10/22 - 02/23: Handgesture recognition demo for the Tech Challenge at UnternehmerTUM. GitHub Link.
- 10/21 - 09/22: Saliency map prediction on graphic designs with the excellent team of **Perceptual UI**.
- 04/21 - 09/22: **Brain-inspired computing** python framework to facilitate research on HDC.

Work Experience

Research Assistant for Transformer Acceleration
Munich, Germany

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 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
Munich, Germany

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
Stuttgart, Germany

Game Developer Intern at Global Internship Program
Okt 2020 - Feb 2021

- Developed in Cocos2d-x an action puzzle game(Dragon Buster) targeting U.S. market.

Skills

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