

# Daniel Bin Schmid

✉ Email: [danielbin.schmid@tum.de](mailto:danielbin.schmid@tum.de)

🏠 Website: [danielbinschmid.com](https://danielbinschmid.com)

🌐 [danielbinschmid](https://github.com/danielbinschmid)

I am a Master's student in Computer Science, graduating in May 2025 with a machine learning focus. I specialize in designing domain-aware neural models that align architecture with application needs. Most recently, I developed controllability techniques for audio diffusion models to meet the requirements of music creation.

## EDUCATION

### Technical University of Munich (TUM)

M.Sc. in Computer Science (Informatics)

GPA: 1.2/1.0

Oct. 2022 - May 2025

Munich, Germany

### University of Stuttgart

B.Sc. in Computer Science (Media Informatics)

GPA: 1.9/1.0

Oct. 2018 - Sept. 2022

Stuttgart, Germany

## PUBLICATIONS & SELECTED RESEARCH WORKS

(\*: Equal contribution)

[1] [Optimization-Based Control of Pre-Trained Diffusion Models for Sound Design](#)

Daniel Bin Schmid, Juhan Nam

Master's Thesis, 2025

[2] [MANTRA: The Manifold Triangulations Assemblage](#)

Rubén Ballester\*, Ernst Roell\*, Daniel Bin Schmid\*, Mathieu Alain\*, Sergio Escalera, Carles Casacuberta, Bastian Rieck

International Conference on Learning Representation (ICLR), 2025

[3] [Exploring the Potential of Causality and Deep Learning for Medical Imaging](#)

Ronald Skorobogat\*, Daniel Bin Schmid\*, Shunyu Zhao\*, Leonard Waldmann\*, Lennart Bastian, Ashkan Khakzar, Massimo Fornasier

Research Project, 2023

## RESEARCH EXPERIENCE

### Diffusion Models for Audio

Visiting Student Researcher at Music and Audio Computing Lab, KAIST

Built a novel technique for diffusion-based content editing.

Oct. 2024 - June 2025

Daejeon, Korea

[1]

### Topological Deep Learning

Research Assistant at AIDOS Lab, Helmholtz Munich

Published a foundational dataset to benchmark simplicial complex-based neural networks.

May 2024 - Sep. 2024

Munich, Germany

[2]

### Causal Deep Learning for Medical Imaging

Research Intern at TUM CAMP & Torr Vision Group (University of Oxford)

Exploratory research on ways to apply causal deep learning to healthcare applications.

Oct. 2023 - Mar. 2024

Munich, Germany

[3]

### Hardware Acceleration of Transformers

Research Assistant at Chair of AI Processor Design, TUM

Analysed sparsity within transformer models and built infrastructure to design a custom ISA.

Feb. 2022 - Oct. 2023

Munich, Germany

## EXTENDED PROJECTS & ACTIVITIES

### Reinforcement Learning (RL) for Quadcopter Control

Lab Course Project at TUM Learning AI for Dextrous Robots Lab

End-to-end drone control software development (GH: [danielbinschmid/RL-pybullets-cf](https://github.com/danielbinschmid/RL-pybullets-cf)).

Oct. 2023 - Mar. 2024

<b>Theoretical Foundations of Deep Learning Reading Group</b> <i>Reading group</i> at TUM TFAI Seminars on theoretically characterizing neural networks using tools from statistics.	Oct. 2023 - Mar. 2024
<b>On-Device-AI for Brain-Computer-Interfaces</b> <i>Bachelor's Thesis</i> at University of Stuttgart Implemented on-device learning on the GPU of a Smartwatch to calibrate to the user's brainwaves. Implementation provided on github: <a href="#">danielbinschmid/portable-bci</a> .	Jan. 2022 - Sep. 2022
<b>AI-Assisted Graphic Design</b> <i>Lab Course Project</i> at Collaborative Artificial Intelligence Lab (cai), University of Stuttgart Research on neural saliency map prediction. Integrated text information into the prediction.	Oct. 2021 - Jan. 2022
<b>BrainLib: Brain-Inspired Computing Python Framework</b> <i>Lab Course Project</i> at University of Stuttgart Developed a parallelised python framework to accelerate machine learning pipelines.	Apr. 2021 - Sep. 2021

## INDUSTRY EXPERIENCE

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<b>MLOps Engineer</b> at Maurer Electronics GmbH Integrated deep learning models into production-ready C++ software using ONNXRuntime.	Feb. 2023 - July 2023
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## TEACHING EXPERIENCE

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<b>Theoretical Informatics I, Formal Languages &amp; Automata Theory</b> Teaching Assistant at University of Stuttgart (Instructor: Prof. Ulrich Hertrampf).	Oct. 2020 - Feb. 2021
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## SKILLS

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<b>ML Frameworks:</b>	PyTorch, Tensorflow, ONNXRuntime
<b>General Purpose:</b>	Python, Bash, C++, Java, Julia, NodeJS, C#, $\text{\LaTeX}$
<b>Systems:</b>	Docker, ROS2
<b>Hardware-close:</b>	C, Assembly, Chipyard, Chisel, Verilog, OpenGL
<b>Cloud &amp; Databases:</b>	Microsoft Azure, AWS, SQL
<b>Communication:</b>	English (highly proficient), German (native), Chinese (A2)