

HANNES VOGEL

30.11.2000

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EDUCATION

TECHNICAL UNIVERSITY OF MUNICH

Munich, DE

Master of Science (M.Sc.) – Robotics, Cognition, Intelligence

Oct 2019 – Present

- Rigorous, quantitative program focused on intelligent Robotics and AI
- Specialized in machine learning, data science, and autonomous systems with current average grade of 1.5
- Master Thesis on Reinforcement Learning in autonomous driving planning in cooperation with BMW

Bachelor of Science (B.Sc.) – Engineering Science

- Bilingual, intensive 210 ECTS program conveying profound knowledge in mechanical/ electrical engineering and natural sciences
- Bachelor Thesis on simulation-based optimization of lane-following for autonomous robots (1.0)

POLITECNICO DI MILANO

Milan, IT

Master of Science (M.Sc.) – Computer Science (Exchange Semester)

Feb 2025 – Jul 2025

- Focused on Natural Language Processing, Internet of Things, Big Data and Health Data Science
- Achieved the highest possible grade: 30/30 cum laude (equivalent to 1.0)

THE HONG KONG POLYTECHNIC UNIVERSITY

Hongkong, HK

Bachelor of Science (B.Sc.) – Electrical Engineering (Exchange Semester)

Aug 2021 – Dec 2021

- Focused on Aircraft Design, Aviation Systems, Circuit Analysis and Power Electronics

PROFESSIONAL EXPERIENCE (SELECTION)

BMW GROUP

Munich, DE

Master's Thesis (Autonomous Driving)

July 2026 – Present

- Fine-tuning an imitation-learning (IL) autonomous driving planner using reinforcement learning (RL)
- Designing reward functions and closed-loop simulations to evaluate driving performance

BMW GROUP

Munich, DE

Software Engineering Intern (Autonomous Driving)

Sep 2025 – Feb 2026

- Developed and evaluated machine learning models for predicting future positions of preceding vehicles
- Contributed to work package definition, transition cost estimation, and scope planning for a large tender process

MTU AERO ENGINES

Munich, DE

Data Scientist – Intern & Working Student (Strategy & Market Analysis)

Nov 2023 – Feb 2025

- Led the development of a data processing tool in Python and SQL to forecast shop visits for Geared Turbofan Engines
- Enhanced the computational efficiency of a general market forecasting tool using VBA

ROLLS-ROYCE ELECTRICAL

Munich, DE

Working Student (Urban Air Mobility)

Oct 2022 – Oct 2023

- Analyzed lead time, weight, and cost of critical product components to support supplier decisions
- Evaluated shipment data against defined specifications to ensure compliance across the supply chain

YARIX CONSULTING

Munich, DE

Associate Cybersecurity Analyst – Intern & Working Student

Jan 2022 – Oct 2022

- Derived functional and technical safety requirements for a camera-based car mirror system
- Developed and implemented a cybersecurity management system in accordance with ISO/SAE 21434 for a global OEM

PROJECTS (SELECTION – see [Portfolio](#) for more)

Autonomous Vehicle Systems Lab @TUM

Munich, DE

Humanoid Robotics Researcher

Apr 2026 – Present

- Teaching a Unitree G1 humanoid to perform the Bavarian Schuhplattler dance using reinforcement learning
- Deploying the full pipeline from motion capture to sim-to-real, including retargeting and controller training

Lab for Nearable Health Data Science @PoliMi

Milan, IT

AI Software Engineer

Feb 2025 – Jul 2025

- Developed a real-time web app using pose estimation and deep learning to classify and evaluate gym exercises
- Managed the codebase and developed models to assess exercise correctness; received the highest possible grade

Intelligent Machine Programming Lab @TUM

Munich, DE

Robotics Software Engineer

Oct 2024 – Feb 2025

- Programmed a UR10e robot to autonomously draw artwork on a whiteboard, tested in simulation before deployment
- Implemented cleaning and trajectory replay routines for robotic arms using C++ and ROS; highest possible grade

Think. Make. Start. @UnternehmerTUM

Munich, DE

Software & Tech Developer

Sep 2024

- Developed a wearable smart camera device guiding visually impaired through buildings; built as MVP in a two-week sprint
- Handled software, 3D printing, and device design; won Start Award for best business potential

ADDITIONAL QUALIFICATIONS

- **German** – C2, **English** – C2, **Spanish** – B2
- **Experienced with:** Python, C/C++, Java, MATLAB, SQL, Catia V5, Autodesk Fusion, MS Office