Tim Salzmann [in]

AI & Robotics Researcher

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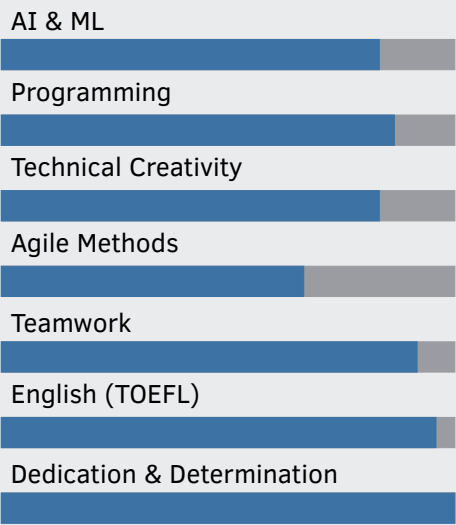- @ Tim.Salzmann@gmail.com
- ✉ Hohenzollernstraße 82, 80801 Munich, Germany
- 📅 Munich, May 19, 2023

About me ———

Hi, I am a second year PhD in Artificial Intelligence and Robotics. I am passionate about discovering and researching new technology and transferring these skills to new fields. In recent years, I was able to gather experience in AI and technology-related fields through multiple research projects and I have homed my working practice by working on several consulting projects. Having lived on four continents and experienced many cultures I consider my self very social, open-minded and a team player.

Skills ———

AI & ML

Programming

Technical Creativity

Agile Methods

Teamwork

English (TOEFL)

Dedication & Determination

↓ more

W - Icon opens website with further information

🎓 Education

Grade

since 2020	**PhD Candidate** *Technical University of Munich* Supervisor: Markus Ryll (TUM) & Marco Pavone (Stanford)	[1], [2]
2019 - 2020	**Research Assistant** *Stanford University, CA, USA*	
2016 - 2019	**M.Sc. - Robotics, Cognition, Intelligence** W *Technical University of Munich*	1.2 / 4.03
2019	**Study Abroad Semester** *Chulalongkorn University, Thailand*	
2016	**Orientational Semester - Engineering** *Technical University of Munich*	
2012 - 2016	**B.Sc. - Automotive Information Technology** W *University of Applied Science, Ingolstadt*	1.2 / 4.03
2014	**Study Abroad Semester** *Nelson Mandela University, South Africa*	
2012	**High School (German Abitur)**	1.1 / 4.14

German w. avg. / US w. GPA W W

🔍 Research

Reference

2019 - 2020	**Trustworthy Interaction-Aware Decision Making and Planning** *Stanford University* Autonomous Systems Labatory (ASL) W Supervisor: Marco Pavone	[3]
2019	**Online Path Generation from Sensor Data for Autonomous Driving** *Technical University of Munich & BMW Research Silicon Valley, CA*	[4]
2018	**Masters Thesis** *Technical University of Munich & BMW Research Silicon Valley, CA* "Deriving a Neural Architecture for Scenario Based Multi-Sensor Input Intelligent Road Models for Automated Driving Functions" Supervisor: Prof. Dr.-Ing. habil. Alois Knoll	AUR
2017 - 2018	**Research Assistant: Safety and human-machine interaction** *Technical University of Munich* Chair of Robotics, Artificial Intelligence and Real-time Systems Supervisor: Prof. Dr.-Ing. Matthias Althoff	W
2017	**Context Prediction Architectures in Next Generation of Intelligent Cars** *Technical University of Munich* Chair of Robotics, Artificial Intelligence and Real-time Systems Supervisor: Prof. Dr.-Ing. Alois Knoll	[5]
2016	**Bachelors Thesis** "Model adaptation and validation for dynamic simulation of driving dynamics for race cars"	AUR

WIP - Work in Progress, AUR - Available Upon Request

⇌ Overview

↓ more

10 Years	**Research and Development** In this period, I worked for multiple academic and industry organizations doing research and development in Robotics, Machine Learning, Autonomous Driving, Batteries and Motorsports, amongst other things. I experienced different working cultures by working in a variety of places.
3 Years	**Technology & Communication Consulting** I worked for two different consulting firms where I gained experience in client-related projects as well as improving my communication and teamworking skills. In addition, I further developed my working structures to be dedicated as well as efficient which are two skills essential in consulting.
6 Years	**Motorsport Commentatory, Event Management and Editorial Support** I have been working as a freelancer for motorsports television production and event management. The work as a commentator has improved my communication skills and my ability to improvise, while the event management tasks have had a positive impact on my problem solving and teamwork skills.

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📊 Experience

2023	**Alphabet	Google DeepMind** ⓦ *PhD Researcher*	📍 Munich / Mountain View
2022	**Alphabet	Google Research	Brain** ⓦ *PhD Researcher*	📍 Munich / Mountain View
2021	**Alphabet	X - The Moonshot Factory	Intrinsic** ⓦ *PhD Resident Artificial Intelligence*	📍 Munich
2020	**epap - Start-Up** ⓦ *Freelancer Consultant for Development and Data Science*	📍 Hannover
2018	**BMW of North America, LLC** *Technology Research Intern for Autonomous Driving*	📍 Mountain View
2018	**CNC - Communications & Network Consulting** *Working Student for Customer Relationship Management & Marketing*	📍 Munich
2017	**Self-Employed** *Motosports Communication & Event Management*	📍 Germany
2016	**BMW Group** *Working Student for Highly Automated and Autonomous Driving*	📍 Munich
2016	**TNG Technology Consulting** *Junior Consultant for Technology and Software Consulting*	📍 Munich
2015	**Publishing Future** *Development and Maintenance Engineer*	📍 Munich
2015	**BMW Motorsports** *Track Engineering and Simulation Intern*	📍 Munich
2014	**BMW Motorsports** *Track Engineering and Simulation Intern*	📍 Munich
2013	**BMW Group** *Software Development Automotive Basic Functions Intern*	📍 Munich

🏆 Scholarships

Since 2016	Scholarship by *e-fellows* for outstanding students (E-Fellows-Scholarship)
2019 - 2020	Fellowship by *Stanford University* for Graduate Student Researchers Department for Aeronautics and Astronautics.
2019 - 2020	Scholarship by *DAAD* for international graduate research projects. (IFI-Scholarship)
2014	Scholarship by *DAAD* for study abroad students (PROMOS-Scholarship)
2012	Scholarship by *BMW* for future talent students in engineering (SpeedUp-Program)

🖥 Computer Skills

Basic	html, Drupal, CAD-Design, Microsoft Azure/Dynamics
Intermediate	Java, C#, php, sql, Visual Basic, Swift, Wordpress
Advanced	Python, C/C++, Torch, TensorFlow, Keras, ROS, LaTeX, Matlab

🚀 What Else?

Having lived on four different continents and being well-traveled I am very culturally-aware, open-minded and I am very keen to acquire new experiences and to generally broaden my horizons. In my free time I am a very active and social person. Outside of work I spend my time in the gym, running, playing tennis, exploring all kinds of new sports and meeting with friends. I enjoy making new connections with people and maintaining previous ones. Further interests include reading, movies with a twist and any new development in technology. I have an interest in following the politics and business news of the day and trying to learn more about past high-level political developments and connections.

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📄 Publications

[1] T. Salzmann, M. Pavone, and M. Ryll, "Motron: Multimodal probabilistic human motion forecasting," in *2022 Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022. arXiv: 2203.04132.

[2] T. Salzmann, E. Kaufmann, J. Arrizabalaga, M. Pavone, D. Scaramuzza, and M. Ryll, "Real-time neural-mpc: Deep learning model predictive control for quadrotors and agile robotic platforms," 2023. doi: 10.1109/LRA.2023.3246839.

[3] T. Salzmann, B. Ivanovic, P. Chakravarty, and M. Pavone, "Trajectron++: Multi-agent generative trajectory forecasting with heterogeneous data for control," in *2020 European Conference on Computer Vision (ECCV)*, 2020. arXiv: 2001.03093.

[4] T. Salzmann, J. Thomas, T. Kühbeck, J. Sung, S. Wagner, and A. Knoll, "Online path generation from sensor data for highly automated driving functions," in *2019 IEEE Intelligent Transportation Systems Conference (ITSC)*, Oct. 2019, pp. 1807–1812. doi: 10.1109/ITSC.2019.8917371.

[5] S. Shafaei, F. Müller, T. Salzmann, M. H. Farzaneh, S. Kugele, and A. Knoll, "Context prediction architectures in next generation of intelligent cars," in *2018 21st International Conference on Intelligent Transportation Systems (ITSC)*, Nov. 2018, pp. 2923–2930. doi: 10.1109/ITSC.2018.8569617.

🏭 Detailed Experience

AUG 21 - DEC 21 | Alphabet | X - The Moonshot Factory | Intrinsic (w) — Munich
PhD Resident Artificial Intelligence

MAY 20 - OCT 20 | epap - Start-Up (w) — Hannover
Freelancer Consultant for Development and Data Science
- Development of new product area: Connecting epap to financial data providers for fintech use cases.
- Consulting for Machine Learning and Big Data development.

APR 18 - DEC 18 | BMW of North America, LLC — Silicon Valley
Technology Research Intern for Autonomous Driving
- Creation of a proof-of-concept closed-loop autonomous driving system. This included all relevant steps such as planning, system design, data collection, implementation, simulation, integration, and testing. Implementation included, but was not limited to, machine learning and path/trajectory planning.
- Research in Reinforcement Learning Algorithms for high-level driving strategy.

NOV 17 - MAR 18 | CNC - Communications & Network Consulting — Munich
Working Student for Customer Relationship Management & Marketing
- Project management, organization and implementation of a Digital Marketing Big-Data project involving multiple stakeholders.
- Development and Maintenance of a Microsoft Dynamics system (CRM).

MAY 11 - DEC 17 | Self-Employed — Germany
Motosports Communication & Event Management
- Commentator and editorial support for motorsport.tv (former MotorsTV) for multiple Motorsport series.
- Assistant Track Commentator for for FIA Formula E Events. Commentatory for framework program and on track activities for the German ePrix in Berlin. Communication and organizational work with local organizers and Formula E.
- Editorial support and Social Media communication for Sky during NASCAR live broadcast.

NOV 16 - NOV 17 | BMW Group — Munich
Working Student for Highly Automated and Autonomous Driving
- Planning and implementation of a rapid prototyping framework (based on ROS) for automated driving. In addition, integration of this framework on vehicle prototypes including various sensors.
- Research for machine learning models for trajectory prediction of traffic participants. This included setting up a data processing pipeline to process vehicle traces from the prototypes into machine learning data sets.

JUL 16 - OCT 16 | TNG Technology Consulting — Munich
Junior Consultant for Technology and Software Consulting
- Development of machine learning models and artificial intelligence strategies and algorithms for fraud detection in the telecommunications sector.
- Team lead for a team of three. Representing the project towards client upper and top management.

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SEP 15 - MAR 16 — Publishing Future
Development and Maintenance Engineer
Feature development for Wordpress based websites.
📍 Munich

SEP 15 - MAR 16 — BMW Motorsports
Track Engineering and Simulation Intern
Physical modeling and simulation for lap time evaluation of (hybrid) race cars.
📍 Munich

FEB 14 - JUL 14 — BMW Motorsports
Track Engineering and Simulation Intern
Creating, managing and validating a multi-body simulation for race configuration of vehicle suspensions.
Automatic evaluation of operation strategy for hybrid power systems.
Automatic smoothing of characteristics maps for traction control.
📍 Munich

AUG 13 - OCT 13 — BMW Group
Software Development Automotive Basic Functions Intern
Development of a management tool for HIL (Hardware in the Loop) tests.
📍 Munich