Tim Salzmann

AI & Technology Researcher

29 May 1993

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About me

Hi, I just graduated with a Master's degree 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 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

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Education

Grade

2019 - 2020 Research Assistant
Stanford University, CA, USA

2016 - 2019 M.Sc. - Robotics, Cognition, Intelligence W — 1.2 / 4.03 (MCL)
Technical University of Munich

2019 Study Abroad Semester
Chulalongkorn University, Thailand

2016 Orientational Semester - Engineering
Technical University of Munich

2012 - 2016 B.Sc. - Automotive Information Technology W — 1.2 / 4.03
University of Applied Science, Ingolstadt

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 — [1]
Stanford University
Autonomous Systems Labatory (ASL) W
Supervisor: Prof. Marco Pavone

2019 Online Path Generation from Sensor Data for Autonomous Driving — [2]
Technical University of Munich & BMW Research Silicon Valley, CA

2018 Masters Thesis — AUR
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

2017 - 2018 Research Assistant: Safety and human-machine interaction W
Technical University of Munich
Chair of Robotics, Artificial Intelligence and Real-time Systems
Supervisor: Prof. Dr.-Ing. Matthias Althoff

2017 Context Prediction Architectures in Next Generation of Intelligent Cars — [3]
Technical University of Munich
Chair of Robotics, Artificial Intelligence and Real-time Systems
Supervisor: Prof. Dr.-Ing. Alois Knoll

2016 Bachelors Thesis — AUR
"Model adaptation and validation for dynamic simulation of driving dynamics for race cars"

2013 - 2015 Teaching Assistant
University of Applied Science, Ingolstadt

2011 - 2012 High School Engineering Research Projects (SIA) W
Extra curricular projects for students with special interest in engineering

WIP - Work in Progress, AUR - Available Upon Request

Overview

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8 Years — Research and Development
In this period, I worked for multiple academic and industry organizations doing research and development in Autonomous Driving, Machine Learning, Robotics, 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

MAY 20 - ongoing | 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.
- Assistant to Stefan Heinrich: during race events (e.g. DTM or Ferrari Days) I was responsible for maintaining all communication and information flow between the event commentator and the event organizer as well as race control. This included relevant sport-related, administration, and safety information.

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.

SEP 15 - MAR 16 | Publishing Future | Munich

Development and Maintenance Engineer

Feature development for Wordpress based websites.

SEP 15 - MAR 16 | BMW Motorsports | Munich

Track Engineering and Simulation Intern

Physical modeling and simulation for lap time evaluation of (hybrid) race cars.

FEB 14 - JUL 14 | BMW Motorsports | Munich

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.

AUG 13 - OCT 13 | BMW Group | Munich

Software Development Automotive Basic Functions Intern

Development of a management tool for HIL (Hardware in the Loop) tests.

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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, Excel, Word, PowerPoint, Linux, Windows, OSX

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.

Publications

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

[2] 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.

[3] 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.