Bernhard Jaeger

bernhard.jaeger@uni-tuebingen.de | Tübingen, Germany | https://kait0.github.io
Born Feb 1997 in Biberach, Germany. | German Citizen.

Education

Apr 2022 – Now, Tübingen, Germany
University of Tübingen
PhD in Computer Science
- *Thesis project:* Towards End-To-End Autonomous Driving
- *Advisor:* Prof. Dr.-Ing. Andreas Geiger
- *Program:* International Max Planck Research School for Intelligent Systems (IMPRS-IS)

Oct 2019 – Sep 2021, Tübingen, Germany
University of Tübingen
Master of Science in Computer Science
- *Thesis project:* Expert Drivers for Autonomous Driving (Grade 1.0)
- *Advisor:* Prof. Dr.-Ing. Andreas Geiger
- *Overall Grade:* 1.36

Oct 2015 – Aug 2018, Munich, Germany
Technical University of Munich (TUM)
Bachelor of Science in Informatics: Games Engineering
- *Thesis project:*Measuring Google QUIC Connection Establishment Times (Grade 1.0)
- *Advisor:* Prof. Dr.-Ing. Jörg Ott
- *Overall Grade:* 2.4

Sep 2007 – Jun 2015, Biberach, Germany
Pestalozzi Gymnasium Biberach
Abitur (Overall Grade: 1.7)

Professional Experience

Apr 2022 – Now, Tübingen, Germany
University of Tübingen
Research Associate, Ph.D. Candidate
My research focuses on end-to-end autonomous driving, imitation learning, reinforcement learning and computer vision.
- *Thesis project:* Towards End-To-End Autonomous Driving
- *Advisor:* Prof. Dr.-Ing. Andreas Geiger

Jul 2022 – May 2023, Tübingen, Germany
Max Planck Institute for Intelligent Systems
Guest Scientist

Nov 2021 – Mar 2022, Tübingen, Germany
University of Tübingen
Research Assistant
- *Advisor:* Prof. Dr.-Ing. Andreas Geiger

Oct 2018 – Oct 2019, Reutlingen, Germany
Ferchau GmbH
Software Developer
During my time in Reutlingen, I developed the graphics software of an embedded system that was deployed in production as part of a luxury car. The code was written in C.

Supervision

Apr 2022 – Now
Tübingen, Germany

University of Tübingen
Master Thesis Advisor

- *Sep 2024 – now* Jens Beißwenger (Topic: Model-based Reinforcement Learning for Autonomous Driving Planners)
- *Oct 2023 – Nov 2024* Maximilian Hilbert (Thesis: Temporal Imitation Learning in End-to-End Autonomous Driving)
- *May 2022 – Nov 2022* Partha Ghosh (Thesis: Exploring Semi-supervised and Self-supervised Learning Approaches in Autonomous Driving)

Teaching Experience

Apr 2022 – Now
Tübingen, Germany

University of Tübingen
Lead Teaching Assistant

- *Apr 2023 – Jul 2023* Organisation eines Alumni-Tages der Informatik (seminar)

Teaching Assistant

- *Oct 2023 – Feb 2024* Self-Driving Cars (lecture)
- *Oct 2022 – Feb 2023* Self-Driving Cars (lecture)
- *Apr 2022 – Jul 2022* Organisation eines Alumni-Tages der Informatik (seminar)

Oct 2017 – Feb 2018,
Munich Germany

Technical University of Munich (TUM)
Teaching Assistant

- Betriebssysteme und hardwarenahe Programmierung (lecture)

Oct 2016 – Feb 2017,
Munich Germany

Technical University of Munich (TUM)
Teaching Assistant

- Grundlagen Datenbanken (lecture)

Academic Activities

Invited Talks:

- On output representations for end-to-end driving. Machine learning for Autonomous Driving, NeurIPS Workshop 2022

Reviewer:

- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Robotics and Automation Letters

Published Code:

- transfuser
- carla_garage

Technical Skills

Languages: German (native), English (proficient)
Programming: Python, C, C++, PyTorch, Libtorch, Numpy, CARLA, Git, OpenCV

Awards

2024 | Our approach TF++ ranked **second** in the CVPR 2024 CARLA AD Challenge.

2023 | Our approach Zero-shot TF++ ranked **second** in the NeurIPS 2023 CARLA AD Challenge on the sensor track.

2022 | Our approach Map TF++ ranked **first** in the NeurIPS 2022 CARLA AD Challenge on the map track.

2021 | Our approach TransFuser ranked **second** in the NeurIPS 2021 CARLA AD Challenge on the sensor track.

Publications

2024 | [1] **B. Jaeger** and A. Geiger, "An invitation to deep reinforcement learning," *Foundations and Trends in Optimization*, 2024.

[2] L. Chen, P. Wu, K. Chitta, **B. Jaeger**, A. Geiger, and H. Li, "End-to-end autonomous driving: Challenges and frontiers," *Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)*, 2024.

[3] T. Miyato, **B. Jaeger**, M. Welling, and A. Geiger, "Gta: A geometry-aware attention mechanism for multi-view transformers," in *Proc. of the International Conf. on Learning Representations (ICLR)*, 2024.

2023 | [4] **B. Jaeger**, K. Chitta, and A. Geiger, "Hidden biases of end-to-end driving models," in *Proc. of the IEEE International Conf. on Computer Vision (ICCV)*, 2023.

[5] K. Chitta, A. Prakash, **B. Jaeger**, Z. Yu, K. Renz, and A. Geiger, "Transfuser: Imitation with transformer-based sensor fusion for autonomous driving," *Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)*, 2023.