ZHEJUN ZHANG

zhejun.zhang94@gmail.com ◆ https://zhejz.github.io/

EDUCATION

ETH Zurich, Switzerland 2020 - 2024
Ph.D. at the Computer Vision Lab with Prof. Luc Van Gool. Toyota TRACE Zurich
Thesis Title: *Neural Policies for Prosocial Navigation.*
Focus on end-to-end learning and motion generation for autonomous driving and robot navigation.

ETH Zurich, Switzerland 2016 - 2019
M.Sc., Department of Electrical Engineering and Information Technology. GPA: 5.93/6.00
Willi Studer Prize for Best Master Student in the Department. Ranking top 1
Focus on system & control, deep learning, and computer vision. ESOP Scholarship

TU Munich, Germany 2012 - 2015
B.Sc., Department of Electrical Engineering and Information Technology. GPA: 1.03/1.00
Degree with High Distinction for Best Bachelor Student in the Department. Ranking top 1
Focus on control & communication engineering. DAAD Full Scholarship

SELECTED PUBLICATIONS

1. Z. Zhang, P. Karkus, M. Igl, W. Ding, Y. Chen, B. Ivanovic, M. Pavone. *"Closed-Loop Supervised Fine-Tuning of Tokenized Traffic Models."* arXiv, 2024.
2. Z. Zhang, A. Liniger, C. Sakaridis, F. Yu, L. Van Gool. *"Real-Time Motion Prediction via Heterogeneous Polyline Transformer with Relative Pose Encoding."* NeurIPS, 2024.
3. N. Bührer, Z. Zhang, A. Liniger, F. Yu, L. Van Gool. *"A Multiplicative Value Function for Safe and Efficient Reinforcement Learning."* IROS, 2023.
4. Z. Zhang, A. Liniger, D. Dai, F. Yu, L. Van Gool. *"TrafficBots: Towards World Models for Autonomous Driving Simulation and Motion Prediction."* ICRA, 2023.
5. Z. Zhang, A. Liniger, D. Dai, F. Yu, L. Van Gool. *"End-to-End Urban Driving by Imitating a Reinforcement Learning Coach."* ICCV, 2021.

PROFESSIONAL EXPERIENCE

NVIDIA Switzerland AG, Zurich, Switzerland Jun. 2024 - Mar. 2025
Research Internship, Autonomous Vehicle Research Group.
Closed-loop fine-tuning of next-token prediction policies for motion generation.
Top 1 ranking (as of Jan. 2025) on the Waymo Open Sim Agent Challenge for traffic simulation.

Seervision AG, Zurich, Switzerland 2019
R&D Engineer
Develop and deploy cinematographic tracking algorithms for pan-tilt-zoom cameras.
Implement extended Kalman filters in C++ using Eigen and ROS to compensate for delays in the multi-object tracker, enabling the pan-tilt motor controllers to respond more quickly and reliably to the tracked target.

Seervision AG, Zurich, Switzerland 2018
Research Assistant
Prototype learning-based tracking algorithms for pan-tilt cameras.
Implement deep learning-based multi-object detection, tracking, and motion prediction models in ROS and Python to generate real-time tracking targets for the MPC controller of the pan-tilt motors.

RESEARCH EXPERIENCE

Automatic Control Laboratory (IFA), ETH Zurich & Seervision AG 2018
Master Thesis with Prof. John Lygeros and Dr. Nikos Kariotoglou.
Thesis Title: *Learning Cinematographic Motion Control from Videos.*

Institute for Dynamic Systems and Control (IDSC), ETH Zurich 2017
Semester Project with Prof. Raffaello D'Andrea.
Thesis Title: *Improving the Trajectory Tracking of a Parametrized MPC.*

Automatic Control Laboratory (IFA), ETH Zurich 2016
Semester Project with Prof. John Lygeros.
Thesis Title: *Object Tracking on Arduino and a Commercial Gimbal.*

Chair of Information-Oriented Control (ITR), TU Munich 2015
Bachelor Thesis with Prof. Sandra Hirche.
Thesis Title: *Online Gaussian Process Regression Parametrized by Dual Quaternions.*

PATENTS

1. *"Closed-Loop Supervised Fine-Tuning of Tokenized Traffic Models."* US Patent, 2024. Under review.
2. *"Real-Time Motion Prediction via Heterogeneous Polyline Transformer with Relative Pose Encoding."* EP Patent, 2023. Under review.
3. *"Prediction method and system, computer program, computer-readable medium"*, EP4296898A1, 2023.
4. *"Training method for training an agent for controlling a controlled device, control method for controlling the controlled device, computer program(s), computer readable medium, training system and control system"*, EP4124995A1, 2023.

STUDENT SUPERVISION & TEACHING

- Teaching Assistant. *"Computer Vision and Artificial Intelligence for Autonomous Cars."* 2023.
- Nick Bührer. *"Safety Critics for Safe and Efficient Reinforcement Learning."* 2022.
- Alan Tirado Mayer. *"Learning-Based Autonomous Racing Path Planning from LiDAR Data."* 2022.
- Felix Schmitt-Koopmann. *"Uncertainty in Reinforcement Learning with World Models."* 2021.
- Manuel Breitenstein. *"Dream To Drive: Learning Latent Dynamics for Model-Based Reinforcement Learning."* 2021.

SKILLS & LANGUAGES

Programming	Python, C++, Matlab, R, Pytorch, Tensorflow, ROS, OpenCV, Eigen.
Development Tools	AWS, Slurm, Git, Linux, Docker, LaTex, MS-Office, Image and Video Editing.
Language	Chinese (Native), English (Proficient), German (Proficient, C1).

REFERENCES

Dr. Maximilian Igl: migl@nvidia.com
Senior Research Scientist. NVIDIA, Switzerland.

Dr. Peter Karkus: pkarkus@nvidia.com
Research Scientist. NVIDIA, Switzerland.

Dr. Alexander Liniger: alexliniger@gmail.com
Research Scientist. The AI Institute Zurich, Switzerland.

Dr. Dengxin Dai: dengxin.dai@huawei.com
Director of Research. Huawei Zurich Research Center, Switzerland.