Yuanfei Lin

Personal Information

Department of Informatics
Technical University of Munich
Boltzmannstr., 3 85748 Germany

(+49) 15223290081
yuanfei.lin@tum.de
yuanfeilin.github.io

Education

Technical University of Munich, Munich, Germany

Ph.D., Computer Science — 2021 - present

- Advisor: Prof. Dr.-Ing. Matthias Althoff

M.Sc., Mechanical Engineering — 2018 - 2020

- GPA: 1.1/1.0 (Best 1% German grading scale)

M.Sc., Mechatronics and Robotics — 2019 - 2020

- GPA: 1.2/1.0 (Best 5% German grading scale)

Tongji University, Shanghai, China

B.Sc., Automotive Engineering — 2013 - 2018

- GPA: 4.8/5.0 (Best 5% Chinese grading scale)

Honors and Awards

Graduation Scholarship Awarded by TUM	2020
German National Scholarship	2019
Excellent Graduates of Shanghai, China	2018
Tongji Scholarship of Excellence	2017
National Scholarship in China	2016, 2014
Shanghai Scholarship, China	2015

Research Experience

Technical University of Munich, Munich, Germany

Research Assistant (February- March, 2021)
Continued the work of the Master's Thesis, which targets for the IEEE ITSC 2021.

Master's Thesis (May - December, 2020)
Efficient Trajectory Repairing for Automated Vehicles
To ensure the safety of autonomous vehicles, we repaired the trajectories which do not consider all traffic rules or were infeasible to be executed. The first approach was based on an anytime graph-based search algorithm. In the second approach, we combined reachability analysis with convex optimization. They were both evaluated with different real traffic scenarios.

Semester Thesis (November, 2019 - May, 2020)
Creation of Complex Test Scenarios for Automated Vehicles
To secure and release automated vehicles, we presented an optimization-based approach to generate more complex test scenarios by means of Evolutionary Algorithm (EA). Tuning experiments with Genetic Algorithm (GA) and Particle Swarm Optimization (PSO) were performed to achieve better optimization performance.

Research Assistant (June - December, 2019)
Development of an Intuitive Forklift Mast Control with Haptic Feedback
Developed a Virtual Reality (VR) environment with Unity 3D to simulate a real factory with industry 4.0. Generated functions in VR with C# to perform tests on the control concepts of a forklift mast. Established agile connections between VR and external equipment (Oculus Rift and LogiTech).

Tongji University, Shanghai, China

Bachelor's Thesis (January - July, 2018)
Degradation Mechanism and Modeling of Power Battery for Electric Vehicles

Designed and completed reference performance and accelerated life cycle tests of a ternary lithium-ion battery. Discovered variation rules of capacity & ohm resistance with temperature, discharge depth and charge-discharge ratio. Formulated a semi-empirical cycle life model and verified it with a new set of test data.

ZEAL Eco-Power Team (September, 2015 - September, 2017)
Member in Vehicle Group

Designed car shells with low wind resistance using Catia, Inventor and Hypermesh. Manufactured basic components of energy-saving cars, such as rear-view mirrors and shell connectors. As a member of the vehicle team during the 10th Honda China Energy Conservation Competition, helped the ZEAL Eco-Power Team to win the second runner-up.

Teaching Experience

MW0538 Teaching Assistant, TU Munich (May - July, 2020)

Formerly a Teaching Assistant for MW0538, Modern Control 1, with Prof. Dr. Boris Lohmann. Duties included teaching tutorials, and writing and developing course materials.

Papers in preparation

Yuanfei Lin*, Sebastian Maierhofer, Matthias Althoff.
Computationally Efficient Sampling-Based Trajectory Repairing for Autonomous Vehicles.
IEEE International Conference on Intelligent Transportation Systems, 2021. In-Prep.

Computer Skills

- **Programming**: ROS, MATLAB, Python, C/C++, C#, LaTeX
- **Software**: Simulink, Unity 3D, AutoCAD, Catia, Inventor
- **Language**: Chinese (Native), English (C1), German (C1)
- **Interests**: Swimming, Drawing, Traveling, Volunteering

Industry Experience

Software Engineering Intern, Validas AG, Munich, Germany (December, 2019 - March, 2020)

Interned at Validas AG, an expert in library and tool qualification. Analyzed functional safety of libraries by the Tool Chain Analyzer (TCA) for automotive industry. Generated test cases in Python and C++ for the CUDA library using industrial standard ISO26262.

Software Engineering Intern, NIO, Shanghai, China (October, 2017 - January, 2018)

Interned at NIO, an automobile manufacturer specializing in designing and developing electric vehicles. Tested NOMI, an in-car AI system, for NIO ES6 and ES8 prior to launch. Evaluated NOMI functions such as navigation and vehicle control with static and dynamic indicators.

Product Development Intern, Volkswagen Group China, Shanghai, China (April - October, 2017)

Interned at Volkswagen Group China, a division of the German automotive concern Volkswagen Group in China. Assisted in the establishment of Inspection Characteristic Plan (PMP) files for each project. Generated PMP subsidiary project files, and used Catia to conduct pre-processing analysis.