Guolin Yang

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Education

University of Manchester, United Kingdom Jan 2023 - Present
PhD in Electrical & Electronic Engineering, supervised by Guido Herrmenn

University of Manchester, United Kingdom Sep 2020 - Jul 2022
MSc in Advanced Control and Systems Engineering with Extended Research, supervised by Guido Herrmenn

Hunan University, P.R.China Sep 2016 - Jun 2020
BSc in Vehicle Engineering, , supervised by Bing Zhou

Awards & Honors

Studentship of Department Electrical and Electronic Engineering		2022
Top Student of the Year Award	Award to students with the best overall performance across Years 1 and 2.	2022
Research Excellence Award	Award to postgraduate students with the best research performance for Year 2.	2022
Excellent Paper Award	Award to excellent paper of China-SAE Congress.	2020
FSC Overall Winner	Award to Formula Student Teams with highest scores in the competition of Formula Student China.	2019
FSC Best Accumulator Design Award	Award to Formula Student Teams with best battery system in the competition of Formula Student China.	2019
Champion in the 7^{th} Automobile Knowledge Competition	Knowledge Competition of Hunan University.	2018
The Second Prize Scholarship	For the outstanding students of Hunan University.	2017

Experience

Group Lotus, Department of Autonomous Driving System Aug 2022 - Now
Junior Engineer Hangzhou, China

- Based on AUTOSAR tool, complete the development and testing of home/ip communication of algorithm modules such as SOC or MCU, decision-making and regulation in autonomous driving system.
- Complete the development and testing of process scheduling, and complete the development and testing of autonomous driving domain diagnosis and storage (persistence).

NIO, Department of Battery System Jun 2021 - Sep 2021
Software Engineer, Internship Shanghai, China

- Use MBD development tool chain such as matlab/simulink/stateflow to develop BMS application layer software.
- Responsible for the testing and debugging of BMS algorithms using Model-in-the-loop tools.
- Develop model-in-the-loop tools GUI in order to reduce testing time.

Hunan University Electric Racing Team Mar 2017 - Dec 2019
High Voltage Lead Changsha, China

- Response for concept design using lap time simulator. Therefore, the team can focus on the most important part to improve the overall performance. Using Optimum lap and AVL Cruise to simulate. At 2020, we develop our own lap-time simulator in order to improve the simulation result.
- Led the group of the high-voltage system. The voltage platform rose from 333v to 400V, which increased the efficiency of the powertrain system by 12%. Weight of the accumulator was reduced by 21%.
- The team was overall winner of Formula Student China 2019, and won Best Accumulator Design Award.

Publication

Guolin Yang and Tian Chai. "Time Optimal Trajectory Planning for Autonomous Race Car" *In Proceedings of China-SAE Congress 2020, pp.290-296,2020.*

Guolin Yang, Erwin Lopez pulgarin and Guido Herrmann. "A Hierarchical Forecasting Model of Pedestrian Crossing Behaviour for Autonomous Vehicle" (In processing)

Projects

A Hierarchical Forecasting Model of Pedestrian Crossing Behaviour for Autonomous Vehicle Jun 2021 - May 2022
Prof. Guido Herrmann, University of Manchester

- Propose a hybrid pedestrian model called *Hierarchical Forecasting Pedestrian Model (HFPM)*, which is used to simulate the road crossing behaviour of pedestrians based on their individual goals.
- Improve force model with heading direction of pedestrian is developed based on the Social Force Model, which can model the pedestrian-pedestrian interaction.
- A modification of the Artificial Potential Field model is used to plan a feasible path to the individual goals.
- Develop a novel decision model using Finite State Machine and Support Vector Machine.

Time Optimal Trajectory Planning of Autonomous Vehicle Race Car Dec 2019 - Jul 2020
Tian Chai, Hunan University

- Propose a time optimal path planning method for formula student autonomous race car using dynamic programming.
- Develop track following controller using Model Predictive Control.
- Simulate vehicle dynamics with pacejke tire model and aerodynamics map using Carsim.

Skills

Proficient Matlab & Simulink, Python, LaTeX, Carsim
Familiar Linux, C/C++, PyTorch