Tong Zhao
Phone: +46 0707913412, +86 18291721176
Email: tongzhao@kth.se, 1440465528@qq.com
Address: Forskarbacken 6, Stockholm

Education Background

KTH Royal Institute of Technology
2022/09 - Present
Master's Degree in Mechatronics and Embedded Control Systems

- Courses: Dynamics and Motion Control, Nonlinear Control, Embedded Systems for Mechatronics, Simulation and Modeling Toolbox, Control Theory and Practice (Advanced Course), Mechatronics (Advanced Course), Smart Cyber-Physical Systems (CPS)

NWPU Northwestern Polytechnic University
2018/09 - 2022/07
Bachelor's Degree in Flight Vehicle Propulsion Engineering.

- Courses: Aerodynamics, Automatic Control Theory, Engineering Thermodynamics, Theoretical Mechanics, Heat Transfer, Turbo Pump Technology, Space Flight Dynamics, Solid Rocket Motor Design

Skills

- **Languages:** C/C++, Python
- **Software:** MATLAB & Simulink, Ansys, Fluent, Unity
- **Tools:** ROS, Keil
- **Hardware:** Windows, Linux, Embedded Systems, Microcontroller

Professional Experience

Teaching Assistant of Dynamics and Motion Control
Stockholm, Sweden 2023/09 – 2024/01

- Design new experiments based on the C2000 microcontroller, update the contents of experiments, and repair the broken boards.
- Provide help to students who are taking this course and answer their questions.

Research Assistant at Mechatronics KTH
Stockholm, Sweden 2023/03 – 2023/09

- Study the Apollo platform which is an open-source platform and developed by the Baidu company and state-of-the-art in automated vehicles, related work of perception, motion planning and control.
- Focus on motion planning and control based on optimization that formulate the motion planning and control as optimal control problems.

Project Experience

Project: Next Generation Hydrofoil Systems for Robust and Cost-Effective Electric Work Boats (NG-FREEBS) Research Assistant
2024/05 – 2024/10 KTH Sustainable Power Laboratory
Focus: Model Predictive Control, Embedded Control System, Fluid Dynamics

- Design model predictive control strategy to stabilize the hydrofoil system and enable autonomous navigation of the boat.
- https://fudinfo.trafikverket.se/fudinfoexternwebb/pages/ProjektVisaNy.aspx?ProjektId=5189

Project: Digital Futures Summer Research Internship Programme (SRI)
2024/06 – 2024/08 KTH Digital Futures
Focus: Dynamic Programming, Deep Reinforcement Learning

- Extend the master thesis project using other methods such as dynamic programming and deep

reinforcement learning.

- https://www.digitalfutures.kth.se/research-calls/closed-calls/open-call-digital-futures-summer-research-internship-programme-sri/

Project: Master Thesis Distributed cooperative control

2023/09 – 2024/07

Focus: Optimization, Optimal Control, Motion Planning and Control, Connected and Automated Vehicles

- Develop the distributed cooperative control algorithm and pose the vehicle cooperation as the optimization problem in the networked system, which helps connected and automated vehicles cooperate to achieve the desired global goal.
- Formulate the effect of network delays and analyze its impact on the local performance of the distributed cooperative control strategy and the global coherence of connected and automated vehicles.
- Formulate the stochastic disturbance as chance constraints and reduce the adverse effect of network delays using stochastic model predictive control.

Project: Hydrofoil - Mechatronics (Advanced Course)

2023/03 – 2023/12

Focus: TCP/IP, UDP, VR, Unity, Hydrofoil

- Design a hydrofoil simulator based on Stewart rig and combine the simulator with VR headset to get a better visual experience.
- https://www.kth.se/social/files/64ec912f9f9d7e94d1d3c15c/drysurfers-springterm-report.pdf
- https://www.kth.se/social/files/65ae70f1a2d3877714aeec3e/drysurfers-final-report.pdf

GitHub

https://github.com/Ztcreazy

Hobbies

Traveling, Photography, Tennis