Siyuan Wu

+31 6 13453298 ◇ siyuanwu99@gmail.com ◇ github:edmundwsy ◇ edmundwsy.github.io

EDUCATION

MSc Robotics, Delft University of Technology, Delft, Netherlands *Sep. 2021 - Aug. 2023 (Est.)*
Supervised by Dr. Javier Alonso-Mora.
Robot Software Practical (9.5), Planning & Decision Making (9.5), Optimisation for System & Control (9.0), Robot Dynamics & Control (9.0), Machine Learning for Robotics (9.0), Machine Perception (9.0), OOP C++ (9.5), etc.

Visiting student, FAST Lab, Zhejiang University, Huzhou, China *Jul. 2020 - Aug. 2021*
Supervised by Dr. Fei Gao.
Finished my Bachelor thesis: Object tracking and collision avoidance with event camera.

B. Eng. in Automation (with Honors), Xi'an Jiaotong University, Xi'an, China *Sep. 2017 - Jul. 2021*
Honors Engineering Program, Qian Xuesen Class
Linear Algebra(90), Calculus(92), Statistics(98), Complex analysis (100), Operations research(96), etc.

Exchange, University of Edinburgh, Scotland, United Kingdom *Jan. 2020 - Jul. 2020*
Undergraduate Exchange Program courses: Reinforcement Learning, Game Theory, Optimal Control, etc.

MASTER THESIS

Topic: Distributed Multi-Agent Motion Planning in Dynamic Environments
Main supervisor: Dr. Javier Alonso-Mora, **Daily supervisor**: Dr. Gang Chen (Post-Doc)
Est. completion date: July 2023

PUBLICATIONS

Siyuan Wu, Gang Chen, Moji Shi, Javier Alonso-Mora "Multi-Agent Trajectory Planning in Dynamic Environments with Occupancy Prediction", *submitted to IROS 2023* [code]

Gang Chen, **Siyuan Wu**, Moji Shi, Wei Dong, Hai Zhu, Javier Alonso-Mora "RAST: Risk-Aware Spatio-Temporal Safety Corridors for MAV Navigation in Dynamic Uncertain Environments", *IEEE Robotics and Automation Letters (RA-L)*, 2023 [paper, code]

Botao He*, Haojia Li*, **Siyuan Wu**, Dong Wang, Zhiwei Zhang, Qianli Dong, Chao Xu, Fei Gao "FAST-Dynamic-Vision: Detection and Tracking Dynamic Objects with Event and Depth Sensing", *IEEE/RSJ International Conference on Intelligent Robots and Systems(IROS)*, 2021 [paper, code, video]

RESEARCH INTERESTS

Autonomous Navigation, Motion Planning, Unmanned Aerial Vehicles, Optimal Control, MPC

ACTIVITIES

IEEE RAS Winter School on SLAM in Deformable Environments, 2020 *(Won 3rd Prize over 19 Groups)*[code]
Teaching Assistant of TU Delft MSc courses: *RO47003 Robot Software Practical*
Teaching Assistant of TU Delft MSc courses: *RO47005 Planning & Decision Making*

SELECTED PROJECTS

MAV Navigation in Dynamic Environments *Dec. 2021 - June. 2022*
Supervised by** Dr. Javier Alonso-Mora, Cognitive Robotics, **TU Delft

- Proposed a novel approach to construct spatio-temporal safety corridors from a particle-based uncertainty map.
- Implemented a trajectory optimizer by solving constrained minimum-snap problems.
- Achieved highest successful rate compared to state-of-the-art algorithms under different noise levels.

Dynamics Vision Based Perception *Jul. 2020 - Feb. 2021*
Supervised by** Dr. Fei Gao, FAST Lab, **Zhejiang University

- Proposed an onboard perception system for dodging fast-moving objects with low latency and high percision.
- Implemented a moving object detection and trajectory prediction algorithm using event camera.
- Hardware design and assembly of a 450mm drone carrying DVXplorer, Realsense 435i and DJI Manifold-2C.

A Paper Reproduction of Learning Monocular Dense Depth from Events *April. 2022 - June. 2022*
course project: Seminar Computer Vision by Deep Learning [blog]

- Reproduced the paper "*Learning Monocular Dense Depth from Events*" and trained on a DSEC dataset.
- Discussed the results with different losses, e.g. structural similarity (SSIM) loss.

More projects can be found at https://edmundwsy.github.io/projects/

AWARDS AND SCHOLARSHIPS

National Scholarship of China	Top 1%	Ministry of Education, China	*Nov. 2018*
Second Standard Scholarship	Top 5%	Xi'an Jiaotong University	*Sep. 2019, Sep.2020*
Mechanic Alumni Scholarship	Top 3%	Qian Xuesen's Honors College, XJTU	*Mar. 2019*
Excellent Graduate		Xi'an Jiaotong University	*Jul. 2021*

SKILLS

Programming: C/C++, Python, MATLAB, Verilog
Softwares&Tools: ROS, Gazebo, PX4, OpenCV, PyTorch, Tensorflow