Fengkai Chen

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OBJECTIVE

To obtain a challenging full-time **Software Engineer** position starting from June 2023.

TECHNICAL SKILLS

- Proficient in **Python** and **C++** programming, familiar with common data structure.
- Familiar with **Ubuntu** operating system and Robot Operating System (**ROS**).
- Extensive hands-on experience in Deep Learning and Mobile Robotics.

EDUCATION

University of Michigan, Ann Arbor, MI 2021/08-2023/05

M.S. in Electrical and Computer Engineering: Robotics track | GPA: 4.00/4.00

Research Assistant at CURLY Lab, NAME Department

Selected Coursework: Mobile Robotics, Deep Learning for Computer Vision, Linear System Theory, Probability.

Zhejiang University & University of Illinois at Urbana-Champaign (Joint program) 2017/09-2021/06

B.E. in Electrical Engineering (ZJU) | B.Sc. in Electrical Engineering (UIUC)

Selected Coursework: Machine Learning, Data Science, Control System, Introduction to Robotics.

PROJECT/RESEARCH EXPERIENCE

Inverse Reinforcement Learning Exploration on **Husky UGV** Ann Arbor, MI

Advised by Prof. Maani Ghaffari, NAME Department, University of Michigan, Ann Arbor 2022/01– Present

- Responsible for the Inverse reinforcement learning (IRL) part of the project, which took Incremental Information Gathering (**IIG**) algorithm expert demonstration.
- Built and trained an **IRL** network using **PyTorch** which learns the reward map from **IIG** expert demonstration, IRL planner will generate exploration path more efficiently.
- Deployed exploration on **Husky UGV** (an outdoor field research robot), with the **IRL&IIG** the Husky could explore the outdoor environment in a short time and generate the semantic map of surrounding area.

Online Map Recognition using Bayesian Updates Ann Arbor, MI

Advised by Prof. Maani Ghaffari, NAME Department, University of Michigan, Ann Arbor 2022/01 – 2022/05

- Presented a system for **online map recognition** method using **Bayesian** methods, which could match the correct small submap during relocalization across multiple maps.
- Developed a heuristic-based likelihood model to model the conditional probability of a particle distribution given a map, which feedbacks the map likelihood based on valid particles number and covariance of pose.
- Conducted the experiments with **Gazebo simulation** and use Turtlebot3 as our robot platform, the results performed 100% accuracy in a virtual apartment environment.

3D Human Pose Reconstruction Hangzhou, China

Advised by Prof. Gaoang Wang, International Campus, Zhejiang University 2021/01 – 2021/05

- Refined the 3D pose over an entire sequence from multi-view cameras by applying **Bi-LSTM** after 3D reconstruction.
- Effectively encode multi-view pose within a unified 3D framework by temporal refinement on single frame 3D poses.
- Outperformed the single frames-based model on *Campus* dataset, especially under crowded scenes.

INTERNSHIP EXPERIENCE

Summer Intern Hangzhou, China

Hangzhou Zhongheng Electric Co., LTD 2020/06–2020/09

- Carried out the design and test of power monitor product, completed the required *I/O* waveform test and ripple test.
- Fulfilled **EMC** tests on product communication board debugged the key components and parameters to pass the tests including electrostatic test, pulse group test, surge test, etc.
- Finished the interim product report of power monitor, which reports the complete condition of the product including all the test results and product analysis.