Che Chen (C.C)

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Education

University of Michigan **Sep. 2023 - May 2025 (*expected*)**
M.S. in Robotics, GPA: N/A

University of Michigan **Sep. 2021 - May 2023**
B.S.E in Computer Engineering, GPA: 3.94/4.00

Shanghai Jiaotong University - UM-SJTU Joint Institute **Sep. 2019 - Aug. 2023**
B.S.E in Electrical and Computer Engineering, GPA: 3.26/4.00

Work Experiences

Field Robotics Group **Ann Arbor, MI**
Research Assistant *Sep 2023 - Present*

- NeRF-based SLAM with Event Camera

ROAHM LAB [paper] **Ann Arbor, MI**
Research Assistant *May 2022 - Present*

- Cooperated with 7 researchers on a safe motion planning and control framework. [link]
- Conducted System Identification on Kinova Gen3 and ensured all parameters fell within a 5% tolerance bound.
- Created a real-time robot control framework with **ROS2** for easy integration, utilized in 2 projects.
- Implemented a **robust controller** using interval arithmetic, ensuring tracking error below 0.0049 rad.
- Devised **Pytorch** algorithms to rapidly calculate edges of 2D zonotopes

Petoi LLC **Remote**
Intern Robotics Engineer *May 2022 - Aug. 2022*

- Developed a ROS Interface to connect Petoi's OpenCat firmwarer into ROS community
- Applied a **human pose detection** model to map human postures to robot cat [demo available]

Project Experience

Vox-Fusion-Robust [code] [dataset] **Mar. 2023 - Apr. 2023**
Mobile Robotics by Prof. Maani Ghaffari

- Led a team of 5 students to complete a **NeRF-based SLAM** project
- Enhance a SOTA NeRF-based SLAM project to be robust to global illumination change
- Created datasets of more than 10 scenes to evaluate SLAM algorithm robustness to global and local illumination changes

Realtime and Virtual Driving Simulator **Feb. 2022 - Apr. 2023**
MultiDisciplinary Project (MDP) by Prof. Paul Green

- Led a group of ~10 students in software development
- Developed Joystick Interface on Linux for Carla Simulator
- Refactored and enhanced Wizard project to provide low-cost (~200$) self-driving car simulation

A Guided Tour to Neural Radiance Field (NeRF) [code] **Apr. 2022**
Deep Learning for Computer Vision by Prof. Justin Johnson

- Re-implemented a tiny NeRF network and learned key ideas on NeRF such as Volume Rendering methods
- Familiarized with how to setup a PyTorch machine learning training from scratch

Table Tennis Ball Collector for Use in Multi-ball Training [code] **Feb. 2022 - Apr. 2022**
Introduction to Embedded System Design by Prof. Robert Dick

- Designed a computer vision algorithm utilizing a single RGB camera to accurately estimate the 3D position of ping pong balls.
- Manufactured a simple but efficient ping pong ball collection device with **3D printing** and rubber bands

Skills

Programming C++, Python, MATLAB, Julia, HTML/CSS, Bash, LaTeX
Software ROS (1&2), Docker, Git, Emacs, Linux, Fusion360
Knowledge Robot Kinematics & Dynamics, Control System, Robot State Estimation, Computer Vision, Embedded System, Computer Network