

EDUCATION

Carnegie Mellon University

Ph.D. Robotics Candidate

- Supervisor & Reference: Dr. [Matthew Johnson-Roberson](#)

Pittsburgh, PA, U.S.A.

Jan. 2022 - Present

University of Michigan, Ann Arbor

M.S. Robotics, Ph.D. Robotics Pre-Candidacy

Ann Arbor, MI, U.S.A.

Sept. 2018 - Dec, 2021

Tianjin University (TJU)

B.Eng. in Naval Architecture and Ocean Engineering

- 2018 TJU Bachelor Thesis Research Funding (1%)

Tianjin, P.R.China

Sept. 2014 - July, 2018

INDUSTRY EXPERIENCE

Embedded System Engineer, Shanghai SLAMTEC

P.R.China, 2017

Robotics Engineer, Refraction AI

USA, 2019-2020

- Developed a novel LiDAR-camera calibration method based on intensity-based features;
- Developed an automatic joint calibration pipeline for cameras, LiDARs and IMUs;

RESEARCH EXPERIENCE

Carnegie Mellon University / University of Michigan

Graduate Student Research Assistant, DROP (Deep Robot Optical Perception) Lab

2019- Present

- Building robots: electronics, firmware and software development
- Robotic Algorithms: 3D representation learning and mapping [[paper 1](#)][[paper 2](#)][[paper 3](#)]
- Deploying robots: 2019 Lake Huron, 2019 Hawaii sea, 2023 Florida sea [[news on NOAA.gov](#)]

Massachusetts Institute of Technology

Visiting Undergraduate Researcher, Dept. of Mechanical Eng.

2018

- Developed a method to reconstruct 3D flow field from 2D images (Reference: Dr. [Dixia Fan](#))

SKILLS

What I use: C/C++, CUDA, Python, Linux, ROS, OpenCV, Pytorch, SolidWorks, KiCAD

SELECTED PUBLICATIONS

T. Zhang, K. Huang, W. Zhi and M. Johnson-Roberson, “DarkGS: Learning Neural Illumination and 3D Gaussians Relighting for Robotic Exploration in the Dark”, under review.

W. Zhi, **T. Zhang** and M. Johnson-Roberson, “Learning from Demonstration via Probabilistic Diagrammatic Teaching”, ICRA 2024.

T. Zhang and M. Johnson-Roberson, “Beyond NeRF Underwater: Learning Neural Reflectance Fields for True Color Correction of Marine Imagery”, RA-L 2023, ICRA 2024.

T. Zhang and M. Johnson-Roberson, “Learning Cross-Scale Visual Representations for Real-Time Image Geo-Localization”, RA-L 2022, ICRA 2022.

SERVICES

Teaching Assistant, Self-Driving Cars: Perception & Control

Fall 2021, Spring 2023

Teaching Assistant, Computer Vision

Fall 2023

Reviewer, RA-L, IROS, ICRA, WACV, KDD