tianyiz4@andrew.cmu.edu
+1 248-571-9981

Tianyi Zhang

tyz1030.github.io
Pittsburgh, PA, U.S.A.

EDUCATION

Carnegie Mellon University **Pittsburgh, PA, U.S.A.**
Ph.D. Robotics Candidate *Jan. 2022 - Present*
- Supervisor & Reference: Dr. Matthew Johnson-Roberson

University of Michigan, Ann Arbor **Ann Arbor, MI, U.S.A.**
M.S. Robotics, Ph.D. Robotics Pre-Candidacy *Sept. 2018 - Dec, 2021*

Tianjin University **Tianjin, P.R.China**
B.Eng. in Naval Architecture and Ocean Engineering *Sept. 2014 - July, 2018*
- 2018 TJU Bachelor Thesis Research Award (1%)

INDUSTRY EXPERIENCE

Embedded System Engineer, Shanghai SLAMTEC *P.R.China, 2017*
- Tested IR range sensor and realized functions that prevent a wheeled robot from falling downstairs;

Robotics Engineer, Refraction AI *USA, 2019*
- Developed a novel LiDAR-camera calibration method based on intensity-based features [paper];
- Developed an automatic joint calibration pipeline for cameras, LiDARs and IMUs;

RESEARCH EXPERIENCE

Carnegie Mellon University / University of Michigan
Research Assistant, DROP (Deep Robot Optical Perception) Lab *2019- Present*
- Building robots: electronics, firmware and software development
- Robotic Algorithms: 3D representation learning and mapping for field robots [paper 1][paper 2][paper 3][paper 4]
- Deploying robots: 2019 Lake Huron, 2019 Hawaii, 2023 Florida sea [news on NOAA.gov][The LINK]
- On going projects: Scene generation with diffusion model for field robots

Massachusetts Institute of Technology
Funded 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 (check google scholar for full record)

T. Zhang, W. Zhi, K. Huang, J. Mangelson, C. Barbalata and M. Johnson-Roberson, " RecGS: Removing Water Caustic with Recurrent Gaussian Splatting", RA-L under rebuttal.
T. Zhang, K. Huang, W. Zhi and M. Johnson-Roberson , "DarkGS: Learning Neural Illumination and 3D Gaussians Relighting for Robotic Exploration in the Dark", *IROS 2024 Oral*.
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*.

TEACHING & 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, CoRL*