

# YANYU ZHANG

[yzhan831@ucr.edu](mailto:yzhan831@ucr.edu) || [GitHub](#) || [Google Scholar](#)

(617) 935-7005 || Apt 3411, 3080 Iowa Ave, Riverside, CA, 92507

## EDUCATION

---

**University of California, Riverside** Sep. 2021 - Present

Ph.D. in Electrical Engineering, Mentor: Wei Ren, GPA: 3.9/4.0

**Research Interests:** State Estimation, Visual-Inertial Navigation, SLAM

**Boston University** Sep. 2019 - May 2021

M.S. in Electrical and Computer Engineering, GPA: 3.7/4.0

**University of Detroit Mercy** Sep. 2018 - Jun. 2019

B.S. in Robotics, GPA: 3.4/4.0

**Beijing University of Chemistry Technology** Sep. 2015 - Jun. 2018

B.S. in Mechanical Design, Manufacture and Automation, GPA: 83%

## EXPERIENCE

---

**Researcher at Boston University** Jan. 2020 - May 2021

*Boston University Robotics Lab, Mentor: John Baillieul*

- Optical flow control, neuromimetic control, motion planning.

**Securing Integrity of Micro-Service Builds on Cloud at IBM** Sep. 2020 - Dec. 2020

*Thomas J. Watson Research Center, Mentor: Shripad Nadgowda*

- CI/CD, Tekton pipelines design, MOC In-Toto.

## RESEARCH PROJECTS

---

**Point-Line Cooperative Visual-Inertial Odometry**

- Leverage common points-line features to improve accuracy, especially in low-textured environments.
- Leverage neighbor's observations to bound long-term drifts of VIO.
- IMU-to-camera intrinsic/extrinsic online calibrations, closest point line representation.

**Visual Navigation Using Sparse Optical Flow and Time-to-Transit**

- Theory of robust Eulerian and Lagrangian optical flow.
- Analyse the geometric and perceived time-to-transit values under different feature densities.
- Boundary detection based on the magnitude of flow vector.

**5G Utility Pole Planner Using Google Street View and M-RCNN**

- Detect the utility poles based on M-RCNN.
- Leverage an improved immune algorithm to map the poles on Google Static Street View.
- Design a Django webpage to present the layout of poles' position within the selected areas on AWS.

**Intelligent Hotel ROS-based Service Robot**

- Design a service robot utilizing Hokuyo 2D Lidar and Kinect camera on a Pioneer 3 robot.
- Estimate the best route utilizing the A\* algorithm and navigate across floors in an indoor environment.

## PUBLICATIONS

---

- [1] **Y. Zhang**, P. Zhu, and W. Ren, "PL-CVIO: Point-Line Cooperative Visual-Inertial Odometry" 2023 IEEE International Conference on Robotics and Automation (ICRA), 2023. [Submitted]
- [2] C. Boretti, P. Bich, **Y. Zhang** and J. Baillieul, "Visual Navigation Using Sparse Optical Flow and Time-to-Transit," 2022 IEEE International Conference on Robotics and Automation (ICRA), 2022.
- [3] **Y. Zhang** and O. Alshaykh, "5G Utility Pole Planner Using Google Street View and Mask R-CNN," 2020 IEEE International Conference on Electro Information Technology (EIT), 2020.
- [4] **Y. Zhang**, X. Wang, X. Wu, W. Zhang, M. Jiang and M. Al-Khassaweneh, "Intelligent Hotel ROS-based Service Robot," 2019 IEEE International Conference on Electro Information Technology (EIT), 2019.