# LI, Yixuan

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## EDUCATION

Zhejiang University, Hangzhou, China                                                             Sep 2020–Present
[Morningside Cultural China Scholar](Morningside Cultural China Scholar)
**Major**: Electronic Engineering, **GPA**: 3.94/4.0
**Supervisor:** Professor [Haoliang Qian](Haoliang Qian)
**Coursework**: Electromagnetic Fields & Waves (93/100), Fundamentals of Optoelectronics (96), Quantum Mechanics (95), RF Circuits and Systems (96), Numerical Analysis (95)

## RESEARCH EXPERIENCE

**Tunable Nonlinear Edge Detection | Photonics**                                                Jun 2022–Nov 2022
- Proposed a multilayer structured thin film based on metallic quantum wells that perform edge detection. The effect varies accordingly by tuning the pump light intensity.

**LiDAR-based Localization | Robotics**  Open-source at [zjuluolun/BEVPlace, ☆99](zjuluolun/BEVPlace)        Jul 2022–Dec 2022
- Proposed a rotation-invariant network BEVPlace for LiDAR-based localization problems in autonomous driving. Developed a position estimation method by mapping the feature distance to the geometric space.
- Outperforms the state-of-the-art methods, is robust to view variation, and generalizes well to previously unseen environments. It benefits various applications, including loop closure detection, global localization, and SLAM.

**Image-to-point cloud Cross-modal Localization | Robotics**                                     Dec 2022–Feb 2023
- The motivation is to combine the strengths of LiDAR and cameras, the two types of sensors widely used in localization. Proposed a method to get the location of an image within a large-scale point cloud map. Employ bird's-eye view representation to boost the performance in cross-modal localization.
- Oral presentation and poster session presentation at IROS 2023 conference in Detroit, U.S.

**Portable EMG System for Remote Exercise Guidance and Gesture Recognition | EE**        Oct 2022–May 2023
- Designed the EMG signal front-end hardware circuit, employed neural networks for signal analysis, and integrated the system with an Android app for real-time information display. Utilized for home-based exercise guidance and posture correction during the pandemic; gesture recognition with associated applications.

## PUBLICATIONS

- **Y. Li**, S. Zheng, Z. Yu, B. Yu, S.-Y. Cao, L. Luo, and H.-L. Shen, "I2p-rec: Recognizing images on large-scale point cloud maps through bird's eye view projections," Accepted to **IROS'23** [PDF]
- L. Luo, S. Zheng, Y. Li, Y. Fa, B. Yu, S. Cao, and H. Shen, "Bevplace: Learning lidar-based place recognition using bird's eye view images," Accepted to **ICCV'23** [PDF]

## HONORS AND AWARDS

National Scholarship (Top 0.2% nationwide) (2 Times)                                       Dec 2021 & Dec 2022
Zhejiang University Scholarship – First Prize (Top 3%) (2 Times)                           Dec 2021 & Dec 2022
Second place, ICRA 2022 General Place Recognition Competition (Co-hosted by Carnegie Mellon University)    Oct 2022

## PERSONAL EXPERIENCES

**Co-organizer**, Academic Visit to the U.S. of Morningside Scholars                             Aug–Sep 2023
visited 50+ guests from academic and political sectors, including Presidents of MIT, Harvard, Yale, AAAS, etc.

**Second Place**, Zhejiang University badminton competition women's single                        May 2022

**Volunteer** at Electrical Volunteer Association in Zhejiang University, offering free           Oct 2020–Present
computer repair services for all school faculty and students

## SKILLS

Tools: LaTeX, Linux shell, PyTorch, OpenCV, COMSOL Multiphysics
Programming Languages: Python, MATLAB, C, Java, Verilog