LI, Yixuan

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EDUCATION

Zhejiang University, Hangzhou, China — Sept 2020–Present
Morningside Cultural China Scholar

Major: Electronic Engineering, **GPA**: 3.94/4.0

Supervisor: Professor Haoliang Qian (Zhejiang Univ.), Professor Martin M. Fejer (Stanford Univ., final year project)

Coursework: Electromagnetic Fields & Waves (93/100), Fundamentals of Optoelectronics (96), Quantum Mechanics (95), RF Circuits and Systems (96), Numerical Analysis (95)

RESEARCH EXPERIENCE

Multilayer Structure for Dispersion-Engineered Nonlinear Waveguide | Nonlinear Optics — Oct 2023–Present

- My current final year project in nonlinear optics with Professor Martin Fejer is to implement a multilayer structured waveguide based on LiNb to control the group velocity dispersion in second-order nonlinear interactions. We carry out the project by inverse design.

Tunable Nonlinear Edge Detection | Nanophotonics & Quantum Optics — Feb 2023–Jun 2023

- 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.

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 the IROS 2023 conference in Detroit, USA

LiDAR-Based Localization | Robotics Open-source at GitHub zjuluolun/BEVPlace, ☆104 — 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.

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," 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems **(IROS)**, Detroit, USA, 2023. **Oral Presentation**. [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," 2023 IEEE/CVF International Conference on Computer Vision **(ICCV)**, Paris, France, 2023. [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 EXPERIENCE

Co-organizer, the Morningside Scholars' Academic Visit to the U.S. — Aug–Sept 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 — Oct 2020–Present
Offering free 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 | Language: TOEFL 108