Jiaze Li

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EDUCATION

University College Dublin, Dublin, Ireland   Sept. 2022 – Present
B.E. in Electronic Information Engineering; Present Cumulative GPA: 3.37/4.2

Beijing University of Technology, Beijing, China   Sept. 2022 – Present
B.E. in Electronic Information Engineering; Present Cumulative GPA: 3.33/4.2

Selected High-Scoring Coursework: Maths (A+); Data Structures and Algorithms (A); Signals and Systems (A).

RESEARCH EXPERIENCE

Research Assistant   Oct. 2024 – Present
College of Computer Science, Beijing University of Technology, Beijing, China
Supervisor: Assoc. Prof. Yongjian Deng

Participated in a project aimed at addressing complex inter-frame motion in video frame interpolation (VFI) through event-guided approaches.

- Proposed a novel framework combining event data and Stable Diffusion, with an event-aware denoising strategy and a customized perceptual loss to improve temporal consistency and reconstruction quality under complex motion.

Visiting Student   Oct. 2023 – Present
Department of Building Environment and Energy Engineering, The Hong Kong Polytechnic University, Hong Kong
Supervisor: Asst. Prof. Zhiling Guo

Participated in a project conducting research in computer vision and generative AI for energy engineering applications.

- Leveraged diffusion models and multimodal data to super-resolve meteorological inputs for more accurate photovoltaic (PV) potential estimation.

- Developed PANEL, a unified PV-oriented vision–language foundation model, by curating a worldwide million-scale dataset and retraining CLIP to enable robust zero-shot and few-shot interpretation for downstream visual remote sensing tasks (e.g., classification, segmentation, and image generation).

- Synthesized remote sensing data via generative models to minimize annotation efforts, while optimizing the Segment Anything Model (SAM) to enhance PV segmentation accuracy.

Research Assistant   Sept. 2023 – Jun. 2024
School of Information Science and Technology, Beijing University of Technology, Beijing, China
Supervisor: Prof. Liguo Zhang

Participated in a project developing intelligent visual systems for enhanced transportation safety and human sensing contexts.

- Developed a generative data augmentation pipeline based on Stable Diffusion to synthesize rare small-scale intrusions, enabling enhanced training of an improved object detection model for foreign object recognition.

- Built a real-time 3D human pose reconstruction system by integrating YOLOv8 with depth camera inputs.

PUBLICATION

Enhancing Multimodal Meteorological Data Resolution via Diffusion Model for Accurate PV Potential Estimation.
<u>Jiaze Li</u>, Zhiling Guo*, Huan Zhao, Hongjun Tan, Qing Yu, Rui Zhang, Jian Xu, Jinyue Yan
International Conference on Applied Energy (Oral), 2024 [Paper]

Generative Approach for Detecting Small Intrusive Foreign Objects in High-Speed Railway Scenario.
Quan Hao, Rui Shi, <u>Jiaze Li</u>, Liguo Zhang*
IEEE Transactions on Intelligent Transportation Systems (IF: 8.4), 2026, DOI: 10.1109/TITS.2025.3625181. [Paper]

PANEL: A Photovoltaic-Oriented Vision–Language Foundation Model for Zero-Shot and Few-Shot Remote Sensing Tasks.
Ruizhe Deng, Zhiling Guo*, Penglei Zhang, <u>Jiaze Li</u>, Xin Xu, Qi Chen, Yuntian Chen*, Jinyue Yan*
ISPRS Journal of Photogrammetry and Remote Sensing (IF: 12.2), In Submission.

Synthesizing Images with Aligned Masks Using Text-to-Image Based Generative AI for Robust PV Segmentation.
Hongjun Tan, Zhiling Guo*, <u>Jiaze Li</u>, Yuntian Chen, Qi Chen, Haoran Zhang, Jinyue Yan*
Renewable Energy (IF: 9.1), Revision Under Review [Preprint]

A High-Precision Method for Photovoltaic Panel Segmentation Combining Large-Scale Model Prior Knowledge and Multimodal Information.
Lingchengjia Zhou, Kechuan Dong, Hongjun Tan, <u>Jiaze Li</u>, Qing Yu, Zhiling Guo*, Jinyue Yan
Applied Energy Symposium and Forum: Low-Carbon Cities and Urban Energy Systems (Oral), 2024 [Paper]

Real-Time 3D Human Pose Reconstruction Based on Depth Camera and YOLOv8 Model.
Heng Deng, <u>Jiaze Li</u>, Quan Hao, Zhaoyang Cheng, Rui Shi, Liguo Zhang
CN Patent

* Corresponding author

ACADEMIC SERVICE

- Reviewer for *IEEE Transactions on Intelligent Transportation Systems*   2025

SELECTED AWARDS

- **Outstanding Student Program**, Beijing University of Technology,   2025

- **Second Prize**, China College Students' "Internet+" Innovation and Entrepreneurship Competition,   2024

- **Innovation and Entrepreneurship Award**, Beijing University of Technology,   2024, 2025

- **Academic Excellence Award**, Beijing-Dublin International College,   2022, 2023

TECHNICAL SKILLS

- **Languages:** Chinese (native), English (TOEFL iBT 101/120), Japanese (JLPT N2)

- **Programming:** Python, C, Java, Bash

- **Tools & Platforms:** Git, Linux, WandB

- **Frameworks & Libraries:** PyTorch, NumPy, Pandas, WandB

- **Document Preparation:** LaTeX, Markdown