**Jiaze Li**
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## Education

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

**Beijing University of Technology**, Beijing, China — Sept. 2022 – Present
B.E. in Electronic Information Engineering. 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

- Proposed a novel framework combining event data and Diffusion Transformer, featuring an event-aware denoising strategy and a motion complexity-aware supervision signal to enhance 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

- Leveraged Score-based Diffusion Model, enhanced by a custom upsample module for effective denoising, to super-resolve multimodal meteorological inputs for accurate 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).
- Utilized Stable Diffusion model to synthesize remote sensing data and PV masks for training PV panel detection networks, reducing the annotation cost.
- Enhanced the Segment Anything Model (SAM) by incorporating multimodal semantic information, significantly improving generalization and sensitivity to diverse PV installation characteristics.

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

- Proposed a generative approach for data augmentation based on Stable Diffusion and developed SA-YOLO, which improves YOLOv9 by incorporating advanced mechanisms for enhanced feature extraction and representation to effectively detect small intrusive objects in high-speed railway scenarios.
- Built a real-time 3D human pose reconstruction system by integrating YOLOv8 with depth camera inputs, achieving high accuracy and low latency.

## Publication

**Enhancing Multimodal Meteorological Data Resolution via Diffusion Model for Accurate PV Potential Estimation**.
**Jiaze Li**, 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, **Jiaze Li**, 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, **Jiaze Li**, Xin Xu, Qi Chen, Yuntian Chen*, Jinyue Yan*
*ISPRS Journal of Photogrammetry and Remote Sensing* (IF: 12.2), Under Review.

**Synthesizing Images with Aligned Masks Using Text-to-Image Based Generative AI for Robust PV Segmentation**.
Hongjun Tan, Zhiling Guo*, **Jiaze Li**, 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, **Jiaze Li**, 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, **Jiaze Li**, 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
- **Document Preparation:** LaTeX, Markdown