ZIQIN YANG B.E.

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EDUCATION

School of Electrical Engineering and Automation, Wuhan University   Hubei, China
Bachelor of Engineering in Automation   2021 - 2025 *(expected)*
- GPA: 3.21/4.00.
- Core Courses: C Programming Language(94), Linear Algebra(97), Design of Power Electronics Equipment and System(91).

PUBLICATIONS & PATENTS

1. **Yang, Z.**, Xie, F., Zhou, J., Yao, Y., Hu, C., & Zhou, B. (2024). AIGDet: Altitude-Information-Guided Vehicle Target Detection in UAV-Based Images. **IEEE Sensors Journal.**

2. **Yang, Z.**, Zhou, J., Xie, F., Tang, Y, & Yao, Y. (2024). A method and system for vehicle detection on UAV images based on height information. **Invention Patent.**

3. **Yang, Z.**, Zhou, J., Duan, C., Li, B., Zhou, B., & Li, Q. (2025). TrajMoE: Toward Multimodal Trajectory Prediction with Mixture of Experts. **Information Fusion.** (Under review)

PROJECTS

Altitude-Information-Guided Vehicle Target Detection in UAV-Based Images.
First author | Supervisor: Dr. Jian Zhou   2023.10 - 2024.01
- Proposed a Scale-Adaptive Target Proposal Module(SATP), guided by altitude priori information, to direct the RPN in generating more adaptable responses to targets of varying scales.
- Proposed Dynamic Feature Refinement Module(DFRM) optimizes feature extraction in the FPN with altitude priori information, reducing information loss.

Toward Multimodal Trajectory Prediction with Mixture of Experts.
First author | Supervisor: Dr. Jian Zhou   2024.06 - 2025.03
- Presents an innovative adaptation of the Mixture of Experts (MoE) architecture, called TrajMoE, specifically designed for trajectory prediction tasks.
- Leverages an Encoder-Decoder architecture similar to Transformers, where the encoder includes a latent query multi-head attention (MQA) mechanism and an MoE block.
- Achieves competitive results compared to dense baselines, with both quantitative and qualitative analyses revealing strong connections between experts and trajectory predictions.

Undergraduate Thesis: Dynamic Vehicle Spatio-Temporal Modelling Methods Incorporating High Definition Maps
First author | Supervisor: Dr. Jian Zhou   2024.09 - 2025.06
- Reframes the traditional two-stage process—object detection followed by trajectory forecasting as a single trajectory refinement problem.
- Design a novel refinement transformer that processes LiDAR point clouds, RGB images and high-definition maps to jointly infer object presence, pose, and multi-modal future behaviors.

AWARDS

- **State Level**, Innovative Entrepreneurship Programme for University Students   2024.06
- **First Prize**, 'Huazhong Cup' Mathematical Modelling Challenge   2023.05
- **Successful Participant**, ShuWei Cup IMCM   2022.11
- **Reward of Excellence**, VeriSilicon National Embedded Software Contest   2022.08
- **Successfil Participant**, APMCM   2022.03

SKILLS

Languages: Mandarin(native), Cantonese(native), English(TOEFL: 81, CET6: 431).
Programming: `Python`, `C++`, `Pytorch`.