Ethan Fang

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EDUCATION

2023.09-Present   **Shenzhen MSU-BIT University**   **Bachelor**

- School of Engineering, Major in Electronic and Computer Engineering, GPA 3.96 (Ranked 2/196)
- Major Courses: Probability Theory, Discrete Mathematics, C++ Programming, Data Structures, Circuits and Analog Electronics, Digital Circuits, Signal Systems, Operating Systems.
- 2023-2024 Academic Year First-Class Scholarship, Technical Department Member-University New Media Center, Class President, Outstanding Student Role Model of the University

WORK EXPERIENCE

2024.02   **Mathematical Contest in Modeling (MCM)**

- Integrated **Kalman filtering** and **Bayesian estimation theories** to develop a multi-model cooperative localization and search system. Used **Monte Carlo simulation** to optimize route planning, improving search efficiency and reducing uncertainty.
- Finalist Award (Top 1%), Published a paper: Y. Fang, Y. Wang, and Z. Wei, "A Study of Submersible Search and Rescue Based on Monte Carlo Simulation and Bayesian Estimation," 2025 5th IEEE International Conference on Power, Electronics and Computer Applications (ICPECA), Shenyang, China, Jan. 2025.

2024.07 - 2025.03   **RESEARCH ASSISTANT**   **Autonomous Vehicles**

- Based on **Deep Reinforcement Learning** (DRL) techniques, implemented **DQN, PPO, DDPG,** and **Decision Transformer** algorithms on the Carla autonomous driving simulation platform to analyze the performance differences and optimization strategies under dynamic control tasks. Integrated **CNN** with Decision Transformer to further explore its representation and performance in Carla.
- A Novel CNN-Enhanced Decision Transformer Framework for Dynamic Control in Autonomous Vehicles (SCI journal paper under writing).

2024.10 - 2024.01   **AI for Science**   **Image Reconstruction**

- Built a hybrid framework combining **DeepONet** and **Neural Tangent Kernel** (NTK) techniques to solve inverse problems, including source localization and image reconstruction tasks in Navier-Stokes equations. By integrating physics-constrained and data-driven methods, the framework enhances stability and convergence under sparse and noisy data conditions while optimizing prediction accuracy.
- Paper Published: "A Hybrid DeepONet-NTK Framework for Solving Inverse Problem," in Proceedings of the 2025 IEEE International Conference on Multimedia and Expo (ICME), DOI: 10.54097/2ae9bg64.

2024.11 - Present   **Core Project Leader**   **Multi-Modal Perception for UAVs**

- Based on multi-modal data fusion, **deep reinforcement learning** (DRL), and object detection (**YOLO, Transformer**) technologies, this project aims to enhance UAV environmental perception, dynamic obstacle avoidance, and autonomous decision-making capabilities
- Develop an intelligent UAV system based on multi-modal data fusion and deep reinforcement learning to achieve high-precision target recognition, real-time obstacle avoidance, and autonomous path planning in complex environments.

SKILLS AND CERTIFICATES

Languages: CET-4, CET-6, IELTS 6.0, Cantonese

Technical Skills: Proficient in C++, Python, Matlab, R, and other programming languages

Office Software: Skilled in Word, Excel, PPT, Visio, PS, AI, PR

Other Awards: Second Prize in the National English Speech Contest, 8th place in Shenzhen Middle School Table Tennis Competition, Best Team in Cambridge Summer Research Project

EVALUATE

I am a highly resilient individual, capable of balancing academic excellence with extensive research activities while effectively managing stress through sports and other activities. With an outgoing personality (ENFJ), I excel in teamwork and leadership, efficiently organizing and delegating tasks. My strong foundation in research, proficiency in AI tools, and resourcefulness in utilizing platforms like GitHub enable me to independently solve problems.