# Ziyu Xu

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## Education

**University of Michigan**, BS in Mechanical Engineering, Minor in CS — Sep. 2022 - Jun. 2026
- GPA: 3.81/4.0

**Shanghai Jiao Tong University**, BS in Electrical and Computer Engineering — Sep. 2022 - Aug. 2026
- GPA: 3.63/4.0

## Internship

**Quantitative Analyst Intern**, Treasure-Solution, NY — Dec. 2024 - Mar. 2025
- Field: Quantitative Research, Quantitative Development, Machine learning,
- Design a statistical model integrated with machine learning and automotive factor-digging algorithm to predict and simulate the price behavior in the stock market both in short-term patterns and long-term trends. Integrate the model with a self-built trade framework and the firm's risk assessment framework, enabling adjustments to parameters based on real-time forecasts.
- Used Python and C++ to build the model, machine learning algorithms, and framework. During back-testing, the model achieves 10.3% annual profit, with 5% return rate.

**Data Science Engineer Intern**, Library of Shanghai Jiao Tong University, China — Sep. 2023 – May. 2024
- Field: Data Science, Software Designing
- Lead a team of 4 members to study and analysis academic data (Publications in Web of Science), using Python and JAVA to build a dataset with platform for all researchers in Shanghai Jiao Tong University. Communicate with directors, WOS, and teammates, arranging tasks and resources to help them work efficiently.
- Providing service for 4000 researchers in SJTU already. Website is connected to SJTU official website.

## Research

**Robotic Perception and Control**, UMich — May. 2025 - Now
- In Curly Lab, advised by Prof. Maani Ghaffari
- Field: Algorithms, Model Predict Controller (MPC), SLAM, CV (SAM, DINO, YOLO)
- Design and optimize algorithms for ASV boat to control the thrust force with given reference trajectory. Helping to develop and improve the baseline of SAM + DINO, the perception part of the robot to build 3D map with segmentation and detection information from camera and lidar.
- Coauthor of xxx

**Robotic Perception and Exploration Algorithm Optimization**, UMich — Sep. 2024 - Now
- Advised by Prof. Vasileios Tzoumas
- Field: Algorithms, Machine learning, and SLAM
- Design and optimize algorithms for multiple drones to collaborate, communicate and discover routes. Focusing on integrating commands from controller and internal algorithms (which include machine learning and LLM to design roads) for drones to get better exploration of unknown area and using SLAM for localization.
- Coauthor of xxx

**Surgical Computer Vision Detection**, Shanghai Jiao Tong University, China — Apr. 2024 - Dec. 2024
- Advised by Prof. Yutong Ban
- Field: Deep Learning, Computer Vision
- Apply deep learning into medical field to find bleeding point and potential damage using surgical videos. Address the challenge of improving surgical precision through creating new algorithms
- Coauthor of xxx

## Publications and Rewards

- Gold Medal in The 2023 University Physics Competition (top 2%)
- Engaged in a research and learning program on Natural Language Processing (NLP) at Stanford University.
- M Prize in The Mathematical Contest in Modeling 2024 (top 13%)
- Third place in Robot Competition in Shanghai Jiao Tong University (top 8%)

## Technologies

**Skills:** Have knowledge and experience in quantitative, statistical, data science and michine learning field

**Languages:** C++, Matlab, Python, Verilog, MYSQL, JAVA