

YIFEI (BRUCE) LI

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Education

University of Pennsylvania - GRASP Laboratory

Philadelphia, PA

Master of Science in Robotics

Aug 2025 - (Expected) May 2027

- GPA: 3.90/4.00; Relevant Courseworks:** *Learning in Robotics, Projective Geometry and Machine Perception, Machine Learning, Kinematics, Dynamics, Control and Optimization in Robotics, Robotic Systems Design, Sensors and Actuators, Circuits*

Washington University in St. Louis

St. Louis, MO

B.S. in Computer Engineering; Computer Science; minor in Psychological & Brain Science

Sept 2021 - May 2025

- Major GPA: 3.98/4.00; Overall GPA: 3.89/4.00**
- Graduated Cum Laude;** 2024 Summer Undergraduate Research Award; Dean's List: Spring 2022 - Spring 2024

Research Experiences

Safety on Vision-Language-Action Models under Adversarial Tasks Attacks

Philadelphia, PA

Graduate Researcher

Oct 2025 - Present

- (Ongoing) Conducted safety-oriented evaluation on SOTA VLAs by designing out-of-distribution tasks and analyzing failure modes

Safe Planning in Unknown Environments using Conformalized Semantic Maps

St. Louis, MO

Undergraduate Researcher within Dr. Yiannis Kantaros's Laboratory

Jan 2023 - Sep 2025

- The proposed semantic planner for reach-avoid tasks integrates conformal prediction to quantify semantic map uncertainty without assuming noise distributions, achieving tasks with user-defined probability despite uncertain perception across extensive experiments.
- Manuscript accepted to IEEE Robotics and Automation Letters (RA-L) (Preprint on arXiv)**

Professional Experiences

China Industrial Design Institute

Remote / Shanghai, China

Intern - Backend Developer

Jul 2023 - Sep 2023

- Joined a startup project with members from CIDI and Accenture on an application to help Chinese SMEs pursue digital transformation
- Completed entire development process, incl. backend using Node.js, Java Spring Boot and SQL, and launching with 5+ initial customers

Projects

Reinforcement Learning for Autonomous High-Speed Quadcopter Racing

Philadelphia, PA

University of Pennsylvania

Jan 2026 - Present

- (Ongoing) Implementing PPO in `rs1_rl` framework and training an autonomous quadcopter racing policy in NVIDIA Isaac Lab

Autonomous Pick-and-Place using 7-DOF Robot Arm

Philadelphia, PA

University of Pennsylvania

Oct 2025 - Dec 2025

- Developed a full-stack motion planning pipeline using custom FK and IK solvers with null space optimization for the Franka Emika Panda
- Use end-effector mounted camera to predict and manipulate dynamic objects, achieving 95% success in simulation and 70% on hardware

Supervised Learning with Reduced-Order HJB Seeding for Quadrotor Control

Philadelphia, PA

University of Pennsylvania

Oct 2025 - Dec 2025

- Implemented Nagami & Schwager's work of HJB-seeded learning pipeline by solving discretized HJB on reduced 6D model
- Trained supervised policy from the HJB and deployed on a 12D quadrotor simulator for single object avoidance

Vision-Driven Semantic SLAM and Robot Navigation

St. Louis, MO

Washington University in St. Louis

Jan 2025 - May 2025

- Developed an software stack with semantic SLAM on ground mobile robot that navigates towards objects specified by semantic inputs
- 2D semantic maps constructed by the sensor fusion pipeline resulted in 90% class accuracy and 0.05m localization error

Multi-Agent Path Finding

St. Louis, MO

Algorithm Engineer - Personal Project

Feb 2024

- Implemented Prioritized Planning and CBS, achieving 27% fewer node expansions by using solvers with heuristic-based constraint handling

Involvements

FIRST Global Challenge

Geneva, Switzerland / Singapore

Volunteer & Mentor - Beijing National Day School / International First Committee Association (FIRST)

Oct 2022 - Present

- Volunteer as a robot inspector and pit admin to oversee teams from 190+ countries during the annual Olympic-style competition

Ursaworks Robotics / WashU Robotics Club

St. Louis, MO

Founder & Sub-team Lead & Engineer - Washington University in St. Louis

Sept 2022 - June 2025

- Founded Ursaworks Robotics Club; Organized events & fundraising; Ranked 4/21 in RoboMaster NA 2023 competition as a rookie team

Skills

Programming	Python, Java, C/C++, System Verilog, HLS, RISC-V/x86/ARM Assembly, C#, HTML, CSS, PHP, MATLAB, Racket, Swift, JavaScript, SQL
Prototyping	ROS, Gazebo Simulation, SolidWorks, 3D Printing, CNC Machining, Cadence EDA Design, Xilinx Vivado, STM32
Technical	Linux/Unix, Shell, Git, LaTeX, Audio/Video editing, 2D/3D Production with Unity Engine