

Xuanyou Chen

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Education

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| Georgia Institute of Technology Atlanta, GA | Aug 2025 - May 2027 |
| Bachelor of Science in Computer Engineering | GPA: 4.0/4.0 |
| Specializations: <i>Distributed Systems & Software Design; Robotics & Autonomous Systems</i> | |

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| Emory University Atlanta, GA | Aug 2022 - May 2025 |
| Bachelor of Science in Computer Science and Mathematics | GPA: 4.0/4.0 |

Experience

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| Intelligent Vision & Automation Laboratory (IVALab) Robotics Infrastructure Developer | Aug 2025 – Present |
| <ul style="list-style-type: none">Worked under the guidance of Dr. Patricio Vela to build a full Python package for the MyCobot280 arm, including functions for kinematics, gripper control, trajectory recording, and coordinate frame management (3 modules, 50+ functions).Collaborated on ArUco-based camera calibration and implemented “click-to-capture” vision-guided picking pipeline.Customized the full hardware stack for a suction gripper, including a MOSFET-based pump/valve switching circuit, GPIO interfaces, and 3D-printed mechanical adapter for mounting onto the arm.Diagnosed and repaired two malfunctioning electric grippers—opened and serviced the hardware, coordinated with vendor technical support, and successfully secured two replacement servos at no cost. | |
| RoboNav, RoboJackets Software Team Member | Sep 2025 - Dec 2025 |
| <ul style="list-style-type: none">Implemented in ROS2 and C++ camera-based obstacle detection using HSV filtering to generate top-down occupancy grids.Built key components of a SLAM pipeline: implemented odometry sensor model and particle-filter localization, and a mapping node that uses TF transforms to fuse obstacle detections into a global occupancy grid.Developed a hill-climbing optimization module that samples neighboring terrain and steers toward max-elevation goal points. | |
| Emory Center for AI Learning Project Leader | Jan 2025 - May 2025 |
| <ul style="list-style-type: none">Led the development of a medical-device support chatbot for MedView, enabling patients to ask device-related queries and receive AI-driven responses.Developed a React + TypeScript frontend supporting both text and voice interaction using the Web Speech API.Built a FastAPI backend to query the DeepSeek API, with semantic caching using Sentence Transformers and FAISS for low-latency FAQ retrieval from a predefined MongoDB database. | |
| Applied AI Ventures Lab Research Assistant | Jan 2024 - May 2024 |
| <ul style="list-style-type: none">Developed a full-stack video analytics platform with Next.js frontend and a Spring Boot backend (42+ REST APIs).Designed a database schema in MySQL and deployed backend server on Linux-based AWS EC2 instances, configured network settings to enable remote access.Implemented a video content similarity model using ChatGPT-4 & SpaCy for transcript-based semantic analysis. | |
| Curastone Software Developer Intern | Sep 2023 - Dec 2023 |
| <ul style="list-style-type: none">Assisted the development of a Next.js AI learning assistant generating flashcards and personalized problem sets.Implemented user authentication, file upload, and course management, integrated with backend API using Redux.Designed responsive webpages using Tailwind CSS to ensure proper display of elements on various screen sizes.Deployed website using Vercel and AWS Route 53 and documented the deployment process for future reference. | |

Projects

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| End-to-End Robot Learning via Teleoperation Project Walkthrough | Fall 2025 |
| Tools: Python, PyTorch, SO-101 Arm | |
| <ul style="list-style-type: none">Built a dual-arm teleoperation setup using two 6-DOF SO-101 manipulators, where a leader arm streams joint angles to a follower arm in real time for data collection and manipulation tasks.Developed a data pipeline that records synchronized camera images and 6-DOF joint positions, collecting 50 demonstrations (~9,600 data points) for end-to-end imitation learning.Trained a ResNet-18 to predict SO-101 joint motions directly from images. Analyzed model behaviors and identified key failure modes (shadow sensitivity, limited grasp examples, camera-viewpoint issues). | |
| RRT-Based Drone Racing Planner | |
| Tools: Python, GTSAM, Plotly | Fall 2025 |
| <ul style="list-style-type: none">Implemented a full 3D RRT planner in SE(3), including random pose sampling, nearest-pose search, and steering functions for drone navigation through race-course hoops.Extended the planner with several steering strategies (vector-based, terminal-velocity inspired, rotation-limited) to improve the feasibility of motion.Built a multi-stage RRT pipeline to sequentially navigate through race-course hoops, including backtracking, pose correction, and 3D visualization of the resulting paths. | |

Skills

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| Robotics & Simulation: ROS, Gazebo, MuJoCo, MoveIt, PyTorch, Scikit-Learn, Stable-Baselines3 (SB3), OpenCV |
| Programming Languages: Python, Java, C, C++, SQL, JavaScript |
| Systems & Tools: Linux, Git, VMware, Amazon Web Services, Google Cloud Platform |