Xiaoyi (Sherry) Chen

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Professional Experience

Chef Robotics *San Francisco, CA*

Jan.2025 - Present *Senior Robotics Software Engineer*
Jul.2023 - Jan.2025 *Robotics Team Lead*
Aug.2021 - Jul.2023 *Robotics Software Engineer*

- Robots for food manufacturing (Series A startup). Joined as early engineer. Deployed 40+ robots to customer facilities around the world. The robot fleet has made 60+ million deposits in production.
- Designed and implemented scheduling, behavior planning, motion planning, and control algorithms across the robotics stack (Python, C++, ROS). Notable projects:
  - Worked with the Hardware team to develop utensils and food manipulation motions for a wide range of ingredient classes (ex. cut veggies, mash, leafy greens). Developed a universal trajectory tuning interface that facilitates fast ingredient onboarding. Expanded ingredient class coverage by 5x and unlocked multi-million contracts.
  - Developed prediction and optimization algorithms that pick consistently at high throughput while being robust to ingredient variation over time.
  - Experimented with using Machine Learning to estimate pick weight given colored pointclouds of food topology. Used PointNet as the backbone. Achieved slightly better performance than the existing system. Identified that model accuracy is limited by sensor input noise.
  - Developed optimization algorithms and novel pick trajectories that reduced ingredient leftover by 30%, which leads to yield savings for customers.
  - Investigated and integrated new dynamics-based motion planner, increasing throughput by 16%.
  - Systemically improved placement accuracy, spillage, and placement aesthetics for challenging small-compartment salad bowls, by leading projects across perception, robotics and hardware.
  - Integrated a dynamics-aware motion planner that generates faster, smoother trajectories without causing protective stops.
  - Investigated root causes for robot reliability issues across the robotics and hardware stack.
  - Designed novel refill mechanisms and user flow that don't cause production downtime. (Patented)
  - Integrated a real-time alerting and monitoring system for in-field robots.
- Led team sprints, roadmaps, technical decision-making, project management. Led multiple cross-team projects with tight timelines that unlocked millions in revenue.
- Led onsite deployment, bug triage and software fixes for early customers.
- Mentoring a junior engineer on technical and managerial topics.
- Led Chef's first customer case study which unblocked multiple new contracts.

Nuro *Mountain View, CA*

Jul.2020 – Jul.2021 *Robotics Software Engineer*
Jun.2019 – Aug.2019 *Software Engineer Intern*

- Designed & implemented features for pedestrian interaction and cyclist interaction. Developed traffic rule scores for the ML planner. Integrated ML-learned pedestrian intent-to-cross signal. Fixed critical on-road safety issues which contributed to a key internal milestone. (C++)
- Designed & implemented a key safety feature for vehicle-vehicle interactions based on a probabilistic interaction framework. Improved simulated ego pose to be more realistic in terms of interactions. Improved intersection interactive performances without regressing safety metrics. (C++)
- Spearheaded a pedestrian and cyclist benchmark scene set representative of typical interaction scenes. Increased engineering productivity by providing a consistent benchmark with broad coverage.
- Built a simulation framework for vehicle dynamics and control.

Facebook *Menlo Park, CA*

May.2018 - Aug.2018 Data Scientist Intern
Jun.2017 - Aug.2017 Data Analytics Intern

- Developed ML models for bad account prediction with automated training/testing pipelines (Python, SQL).

Publication

MIDAS: Multi-agent Interaction-aware Decision-making

First Author | UPenn GRASP Lab | Sep.2019 – May.2020

- Developed RL algorithm with attention mechanisms for vehicle-vehicle interaction in urban driving. Built simulator for systematic evaluation (Python).
- Published at ICRA 2021; algorithm outperformed existing approaches in efficiency and safety
- Advised by Prof. Pratik Chaudhari; defended as Master's thesis.

How Roboticists Can Tackle Climate Change

Author | IEEE Spectrum | Mar.2023

- Conducted industry research and interviews to explore climate robotics opportunities.

Projects

Training Action Chunking Transformer (ACT) on SO-101 Robotic Arm | Personal Project | Jul.2025 - Present

- Implemented end-to-end imitation learning pipeline, using the ACT model, for a pick-and-place task. Achieved 90% success rate through iterative improvements. (Python)
- Built custom evaluation framework with stratified sampling and progress scoring to systematically analyze failure modes and improve generalization to out-of-distribution scenarios.
- Published technical blog post on Hugging Face (29 upvotes).

S.S.MAPR Autonomous Surface Vehicle | Electrical/Software Lead | Senior Design | Sep.2018 – May.2019

- Built autonomous water quality sampling robot, partnered with USGS and Philadelphia Water Department
- Designed complete autonomy stack, simulation, teleoperation, and hardware control systems. (C++, Python, MATLAB)
- Winner of 2019 Cornell Cup Grand Prize (press), UPenn Mechanical Engineering Senior Design Judges' Choice Award. Presented at 2022 Hackaday SuperConference (press).

Patents

- System and/or method of cooperative dynamic insertion scheduling of independent agents [link]
- Interface system and/or method for refilling assembly systems (pending) [link]

Education

University of Pennsylvania

The Jerome Fisher Program in Management & Technology | Aug.2015 – May.2020

- **GPA:** 3.91/4.0, Summa Cum Laude
- Master of Science in Engineering, Computer & Information Science
- Bachelor of Science in Engineering, Electrical Engineering
- Bachelor of Science in Economics, Entrepreneurial Management

Service

- Journal peer review: IEEE RA-L, Journal of Electronic Imagining, Robotics and Autonomous Systems, IET Cyber-Systems and Robotics
- Conference peer review: ICRA (2021, 2023, 2026), Conference on Decision and Control 2022.
- Workshop organizer: 2022 RSS Workshop on the gap between research and industry
- Mentorship: Mentor for Women in Robotics, .406 Ventures.