



# Shengmiao (Samuel) Jin

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## EDUCATION

### Cornell University

August 2025 - May 2030 (*expected*)

*Ph.D. Student in Robotics*

- Minor in Computer Science

### University of Illinois Urbana-Champaign

August 2021 - May 2025

*Bachelor of Science in Electrical Engineering with Highest Honors*

*GPA: 3.85/4.0*

- Minor in Computer Science

*Minor GPA: 4.0/4.0*

## PUBLICATIONS

- [1] **Shengmiao Jin**, Yuchen Mo, and Wenzhen Yuan, “Learning to double guess: An active perception approach for estimating the center of mass of arbitrary objects,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2025.
- [2] Zhi Wang\*, Yuchen Mo\*, **Shengmiao Jin**, and Wenzhen Yuan, “Doorbot: Closed-loop task planning and manipulation for door opening in the wild with haptic feedback,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2025.
- [3] Harsh Gupta\*, Yuchen Mo\*, **Shengmiao Jin**, and Wenzhen Yuan, “Sensor-invariant tactile representation,” *International Conference on Learning Representations (ICLR)*, 2025.
- [4] Xinyuan Luo\*, **Shengmiao Jin**\*, Hung-Jui Huang, and Wenzhen Yuan, “An intelligent robotic system for perceptive pancake batter stirring and precise pouring,” *2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024.

\* Equal Contribution

## RESEARCH EXPERIENCE

### Cornell EmPRISE Lab + Praxis Lab

August 2025 - Present

*Advisor: Prof. Tapomayukh Bhattacharjee and Prof. Preston Culbertson*

- Working on Tactile Representation Learning for Dexterous Manipulation

### UIUC RoboTouch Lab

September 2023 - May 2025

*Advisor: Prof. Wenzhen Yuan*

- Designed and implemented an algorithm that decomposes an arbitrary image into a robot trajectory. Experimented and designed an algorithm for the robot to be able to handle liquid in an even manner. Integrated the overall pipeline presented and co-first-authored a paper published in IROS 24. [4]
- Led a project on estimating the mean and uncertainty of the center of mass for any arbitrary object with Active Perception. Submitted a first-author paper to ICRA 25. [1]
- Designed a learning approach to get sensor-invariant tactile image representations with calibration images and a sim2real pipeline. Compared and outperformed some baseline SOTA on several downstream tasks. [3]
- Investigating high-resolution tactile representation for dexterous in-hand object re-position. Training the policy on IssacGym with a teacher-student network, and zero-shot transferring to the real LEAP hand.

## WORK EXPERIENCE

### BGI Shenzhen - Institute of Biointelligence | Intern - Algorithmic Engineer

December 2022 – June 2023

- Implemented a tool to help Biomedical Researchers to perform automatic Image Registration. Was later integrated into Cellbin, a BGI product that empowered research in Stereo-Seq
- Developed an automatic chip analysis tool to facilitate the production of biomedical chips.
- Integrated company’s own Segmentation model on a server app via MONAI-based tool for easy access by biomedical researchers
- Tested performance of different segmentation models, helped fine-tune company’s segmentation models

## TEACHING EXPERIENCE

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### Cornell | *Graduate Teaching Assistant*

- CS 4750/5750 - Foundations of Robotics Fall 2025

### UIUC | *Undergraduate Grader*

- ECE 311 - Digital Signal Processing Lab Spring 2024
- ECE 210 - Analog Signal Processing Fall 2023

## OTHER PROJECTS AND ACTIVITIES

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### Phantom Navigation | ECE 598 CS Final Project Spring 2025

- Implemented a Phantom Touch-based navigation grove with haptic, prototyped the hardware and design the algorithm for navigation.

### Robot Drawing | ECE 470 Final Project Fall 2024

- Implemented a Minimum Spanning Tree plus Edge Detection algorithm to decompose any drawing into a robot trajectory so that we can use the robot to draw an arbitrary input image.

### End-to-End Autonomous Vehicle Driving with Imitation Learning | ECE 484 Final Project Spring 2024

- Implemented and trained Imitation Learning algorithm with data collected on our own at Highbay-IRL. Tested the algorithm on the GEM vehicle. The final video can be found on Youtube.

### Artwork Style Classification and Tranfer | CS 445 Final Project Fall 2023

- Implemented and trained an EfficientNetV2-based classification model, a VGG-based Neural Style transfer, and a CycleGAN-based style generator.

### Reaction Wheel Pendulum | ECE 486 Final Project Fall 2023

- Implemented a 3-state PD controller with Decoupled Observer and friction compensation that can allow a pendulum to reject disturbance and stay at an unstable equilibrium position with only a rotor

### Tetris On FPGA | ECE 385 Final Project Summer 2023

- Implemented the classic game Tetris on an Intel MAX10 FPGA, programmed using SystemVerilog for hardware level and C for software level.

### Computer Vision Team Member | Illini Robomaster Fall 2022

- Part of Illini Robomaster CV Team that implemented object detection and tracking algorithm for competition

### BitCorn | ECE 220 Honors Project Spring 2022

- Implemented a Bitcoin Price prediction model using LSTM and updated daily results on a website

## SKILLS

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**Spoken Languages:** English, Chinese(Bilingual)

**Programming Languages:** Python, C/C++, L<sup>A</sup>T<sub>E</sub>X, Matlab, SystemVerilog

**Software Package:** ROS, PyTorch, OpenCV, PyRo, IssacSDK, TensorFlow, RealSense SDK

## HONORS AND AWARDS

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**Best Entertainment and Amusement Papers Finalists** IROS 24

**James Scholar** Spring 2022 - Spring 2024

**Dean's List** Fall 2021, Spring 2022, Fall 2023, Spring 2024

**Valedictorian**, West Nottingham Academy Class of 2021 May 2021