Shengmiao (Samuel) Jin

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EDUCATION

University of Illinois Urbana-Champaign — May 2025 *expected*
Bachelor of Science in Electrical Engineering — *GPA: 3.93/4.0*
- Minor in Computer Science — Minor GPA: 4.0/4.0

SKILLS

Speaking Languages: English, Chinese(Bilingual)
Programming Languages: Python, ROS, C/C++, LaTeX, R, Matlab, SystemVerilog
Relevant courses: Intro to Robotics, Signal Processing, Computational Photography, Control Systems, Deep Learning for CV, Principle of Safe Autonomy, Artificial Intelligence

WORK EXPERIENCE

UIUC ECE | *Undegraduate Grader for ECE 210 & ECE 311* — August 2023 – Present
- Graded weekly homework assignments and handle all regrade requests for Analog Signal Processing and Digital Signal Processing Lab
- Helped revise the solution manual and grading manual of several homework assignments.

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
- 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
- Developed an automatic chip analysis tool to facilitate the production of biomedical chips.

RESEARCH EXPERIENCE

UIUC RoboTouch Lab | *advisor: Prof. Wenzhen Yuan* — September 2023 - present
- 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 summarized contribution into the paper [1]
- Investigating a learning approach to get a sensor-invariant tactile image representation with additions of calibration images and a sim2real pipeline.
- Leading the project on estimating the center of mass of any arbitrary object from tactile information

Tufts Higher Energy Physics Lab | *advisor: Prof. Pierre-Hugo Beauchemin* — June 2020 – August 2020
- Implemented an Unfolding Algorithm to clean up data from CERN's Large Hadron Collider using Deep Learning algorithms.
- Examined the performance of different Deep Learning algorithms on the specific dataset and how they improve the data quality
- Presented findings in the form of an academic poster at Tufts Summer Research Experience Symposium

HONORS AND AWARDS

James Scholar — Spring 2022 - Spring 2024
Dean's List — 2021-2022, Fall 2023
Valedictorian, West Nottingham Academy Class of 2021 — May 2021

PUBLICATIONS

[1] Xinyuan Luo*, **Shengmiao Jin***, Hung-Jui Huang, and Wenzhen Yuan. An intelligent robotic system for perceptive pancake batter stirring and precise pouring. In *2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024.

* Equal Contribution

OTHER PROJECTS AND ACTIVITIES

End-to-End Autonomous Vehicle 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   Fall 2022
- Implemented a Bitcoin Price prediction model using LSTM and updated daily results on a website