Param Sangani

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Education

Saint Louis University (SLU) *St. Louis, MO*

Ph.D. in Computer Science	Aug. 2025 – May 2028
Master of Science in Computer Science	Aug. 2023 – May 2025
Master of Health Care Administration	Aug. 2022 – May 2023
B.A. in Health Care Administration, Minor in Computer Science	Aug. 2018 – May 2022

Experience

Saint Louis University St. Louis, MO

Graduate Research Assistant - AIRLab Aug. 2023 – Present

- Developed event camera + polarization lens system for 3D reconstruction; integrated ROS and robotic arm control.
- Built hardware-in-the-loop drone simulations using PX4, Unity, and AirSim.
- Conducted research on property inference attacks against multimodal data using machine learning.
- Designed magnetic actuation system for untethered object manipulation with biomedical applications.

Graduate Teaching Assistant – Algorithms (CSCI 5100) Aug. 2024 – May 2025

- Supported course delivery for 100+ Master's students, designing and grading assignments/exams on sorting, graph theory, dynamic programming, and NP-completeness.
- Led weekly recitation sessions and technical workshops reinforcing asymptotic complexity, data structures, and optimization.
- Created algorithm visualization demos in Python to illustrate time-complexity tradeoffs and correctness proofs.
- Implemented autograding scripts and test cases to streamline large-scale submissions.

Graduate Teaching Assistant – Principles of Software Development (CS5030) Jan. 2024 – May 2024

- Assisted in managing a 70+ student course by delivering weekly demonstrations and lectures.
- Led project sessions, mentoring students on debugging, software engineering principles, and collaborative coding practices.

MedLaunch - Team Lead Aug. 2020 – June 2022

- Designed an application that tackled staffing shortages and nurse burnout, particularly in oncology infusion centers (Received 1st place award: $2500 investment)
- Designed a prototype for a medical device that accurately measures the cervix dilation during pregnancy.

Space Systems Research Lab – Ground Ops & Communication Jan. 2019 – May 2021

- Led development and integration of a satellite deployed from the ISS (2019) to measure radiation across atmospheric layers.
- Collaborated on embedded systems design and communication protocols for satellite telemetry.

Projects

3D Reconstruction with Event Cameras & Polarization | *ROS/ROS2, Arduino, Python, Robotics, Optics*

- Designed and implemented synchronized sensing pipeline using event camera, rotating polarizer through arduino controlled motor, 6 DoF Robotic arm, to capture data for surface-dependent 3D reconstruction.

Drone Simulation for Emergency Response | *PX4, AirSim, Unity, Computer Vision*

- Built UAV simulations to analyze human-drone interaction in high-stress environments.

Magnetic Actuation for Contactless Object Manipulation | *3D printing, Deep Learning, Magnetism*

- Developed a system to control the movement of untethered objects using external magnetic fields, enabling non-invasive manipulation
- Applications include medical procedures such as endoscopy and endovascular navigation

Technical Skills

Languages: Python (Proficient), C++, SQL, MATLAB, R, and willing to learn more
Frameworks: TensorFlow, PyTorch, React, Node.js, ROS, Docker, Unity, PX4, AirSim
Developer Tools: Git, Tableau, VS Code, Android Studio, Xcode, CircleCI