Alexis Obu

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EDUCATION

Tufts University, School of Engineering: B.S. Electrical Engineering and Computer Science
Expected Graduation: Spring 2026
GPA: 3.1 / 4.0

RELEVANT COURSEWORK

Electrical Engineering: Circuits & Electronics, Digital Logic, Electromagnetic Fields & Waves
Computer Science: Data Structures, Algorithms, Web Programming, Probabilistic Robotics, Machine Learning
Mathematics: Multivariable Calculus, Linear Algebra, Real Analysis, Differential Equations

SKILLS

Languages: C/C++, Python, Javascript, HTML & CSS, MATLAB
Libraries & APIs: OpenGl, GLFW, Numpy, Pandas, Scikit, OpenCV
Frameworks, Tools & Software: Git, Unity, Unreal Engine, ROS-2

KEY PROJECTS

SwarmSense: Gesture Controlled Crazyflie Swarm   Mar 2024 - May 2024
▪ Lead team developing a gesture-controlled drone swarm using Crazyflie drones
▪ Integrated hardware modules (Flow Deck V2, Crazyradio PA) to enhance drone stability and swarm coordination.
▪ Architected pipeline to integrate gesture recognition, drone command processing, and swarm coordination, ensuring proper communication between components and real-time responsiveness.
▪ Addressed technical challenges, including firmware compatibility and communication latency, ensuring reliable swarm operation.

Image-Based Particle Filter for Simulated Drone Localization   Jan 2024 - Feb 2024
▪ Developed a simulation environment in Python for a drone to localize itself using an image-based particle filter against a known aerial map.
▪ Implemented a particle filter algorithm to estimate the drone's position based on simulated RGB image readings and reference images, with the ability to handle noise in measurements.
▪ Created a user interface to visualize the drone's true position, movement, and particle distribution over time, aiding in the analysis of the filter's performance.
▪ Conducted experiments to evaluate and optimize the effectiveness of the particle filter under various conditions, such as different observation image sizes and levels of sensor noise.

Real-Time Fluid Simulation   Jun 2023 - Jul 2023
▪ Implemented Jos Stam's algorithm for real-time fluid simulation using C++ and OpenGL, resulting in an interactive simulation capable of rendering 50,000 cells in real time.
▪ Utilized numerical methods to solve systems of equations describing fluids.
▪ Used expertise in computer graphics, shaders, and rendering techniques to improve framerates.
▪ Employed profiling to optimize for real-time performance

EXPERIENCE

Project Management Intern, HS2 Project, Department of Transport   Jul 2019 - Aug 2019
▪ Prepared a comprehensive summary report, justifying and proposing mitigation measures for project delays.
▪ Presented a summary report to project directors.
▪ Developed strong communication and teamwork skills in a professional environment.