Alexis Obu

LinkedIn: https://www.linkedin.com/in/alexisobu | **Github:** https://github.com/aobu
Website: alexisobu.com | **Email:** aobu28@gmail.com | **Phone:** +1 (617) 943-5961

EDUCATION

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

SKILLS

Languages: C/C++, Python, VHDL, MATLAB
Libraries & APIs: Pandas, NumPy, scikit-learn, OpenCV, OpenGL
Frameworks, Tools & Software: FPGA, STM32, LTSpice, Ansys HFSS, Git, ROS 2

RELEVANT COURSEWORK

Electrical Engineering: Embedded Systems, Circuits & Electronics, Digital Logic, EM Fields & Waves, Probabilistic Systems Analysis
Computer Science: Machine Structure and Programming, Data Structures, Algorithms, Probabilistic Robotics, Machine Learning, Web Programming
Mathematics: Multivariable Calculus, Linear Algebra, Real Analysis, Differential Equations, Probability, Mathematics of Data Analysis

EXPERIENCE

MSRM Web Development - Developer **Dec 2024 - Present**
▪.Designed and implemented scripts to parse and standardize manufacturing data into JSON, improving data consistency across systems.
▪ Built robust data pipelines connecting client data sources on active manufacturing lines to MongoDB and AWS databases, facilitating real-time data analysis and reporting.
▪ Contributed to the design, development, and deployment of a full-stack custom database solution with a user-friendly interface, integrating front-end features for seamless data monitoring.

Tufts University - Undergraduate Researcher **Jun 2024 - Present**
▪ Collaborating with Prof. Kasso Okoudjou on frame theory and applied harmonic analysis, focusing on the decomposition of harmonic frames drawn from DFT matrices.
▪ Investigating methods to parallelize FFT operations with redundancy to enhance computational efficiency in signal processing workflows.
▪ Developing a formal proof framework to classify and factor these harmonic frames for applications in signal analysis.

KEY PROJECTS

FPGA Arcade Video Game (DVD Battle) **Nov 2024 - Dec 2024**
▪ Implemented a Pong/Breakout-style arcade game entirely in VHDL on an FPGA.
▪ Programmed collision detection, scoring, and real-time VGA output for responsive gameplay.

SwarmSense: Gesture Controlled Crazyflie Swarm **Mar 2024 - May 2024**
▪ Led a team integrating gesture recognition, command processing, and real-time drone coordination.
▪ Optimized firmware compatibility and minimized communication latency for stable swarm behavior.

Image-Based Particle Filter for Simulated Drone Localization **Jan 2024 - Feb 2024**
▪ Developed a Python simulation using image-based particle filtering for drone position estimation.
▪ Created a visualization interface to track particle distribution, true positions, and trajectories in real time.

Real-Time Fluid Simulation **Jun 2023 - Jul 2023**
▪ Built a C++/OpenGL fluid simulation (Jos Stam's algorithm) rendering ~50,000 cells interactively.
▪ Employed numerical methods and profiling tools to achieve real-time performance.