Jean Pascal Cyusa Shyaka

Portfolio: https://pascalcyusa.netlify.app | **LinkedIn:** http://www.linkedin.com/in/pascal-cyusa

Education

Tufts University, Medford, MA *Expected May 2026*

B.S Mechanical Engineering – Minor in Computer Science

Relevant Coursework - Intro to Research in Engineering, Object Oriented Programming (C++), Data Structures & Algorithms (C++), Materials & Manufacturing, Engineering Design, Electronics & Controls and Thermal Fluid Systems.

Work Experience

Microscale Sensors and Systems Lab |Research Intern *Jun 2024 – Present*

- Played a key role in the development of a miniature ultrasonic anemometer using the TDK CH101 sensor for potential applications in Navy high-altitude UAVs.
- Tested the sensor's capabilities, achieving consistent distance measurements within a **± 0.1878 mm** error margin, and wind velocity measurement errors at **± 0.6454 m/s**.
- Developed insights into the relationship between time-of-flight (ToF) and airflow, demonstrating the potential for future iterations to achieve targeted wind velocity accuracy of **±0.05 m/s**.

Tufts Center for Engineering Education and Outreach (CEEO) |Student Intern & Outreach Fellow *Mar 2023 – Present*

- Developed STEM curricula for K-12 students, focusing on practical engineering applications using LEGO and Arduino projects.
- Coordinated the setup of maker spaces in over 20 schools in Rwanda, positively impacting 769 students, and increasing engagement by 37%.
- Collaborated with professors to create and test educational content, incorporating engineering principles into interactive learning experiences.

Projects

TDK CH101 Ultrasonic Sensor Data Collection Automation| Microscale Sensors and Systems Lab Sens *Summer 2024*

- Tasked with learning and configuring the TDK CH101 chip's source code in C for efficient data collection from ultrasonic sensors.
- Integrated C code with LabVIEW to automate the data collection process, improving speed and accuracy in sensor data acquisition.
- Developed a streamlined interface for sensor data retrieval and processing, facilitating easy access for analysis and experimentation.

LEGO & Arduino | Engineering Education *Summer 2023*

- Worked on projects using LEGO Mindstorms and Spike Prime to build sensor-controlled robots and cars, teaching students programming and engineering skills.
- Implemented Python libraries, such as pyArduino, to enhance project functionality and integrate loT devices into hands-on learning experiences.
- Guided students in designing eco-friendly community solutions using Arduino sensors, including wind turbines and recycled materials.

Splendor Game | Intro to Computer Science *Spring 2023*

- Built a terminal-based Splendor game using object-oriented programming in C++, ensuring easy debugging and file handling.
- Developed custom functions to enforce game rules, enhancing the user experience by simulating real-life game scenarios.

Personal Website | Personal Project *Sept 2022*

- Created a personal website to demonstrate web programming skills, using Bootstrap for responsive and user-friendly design.
- Deployed the website to Netlify and maintained GitHub integration for version control.

Languages & Skills

Languages:

- C/C++, Python, MATLAB (Proficient)
- JavaScript, LabVIEW (Experienced)

Technical Skills: Web App Development, System Design, Automation, React.js, Data Structures & Algorithms, Game Design.