Jean Pascal Cyusa Shyaka

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

Education

Tufts University, Medford, MA

B.S Mechanical Engineering – Minor in Computer Science   *Expected May 2026*

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

Work Experience

Microscale Sensors and Systems Lab |Research Intern   *Jun 2024 – Present*
- Tested the TDK CH101 sensor for potential applications in a miniature ultrasonic anemometer for Navy high-altitude UAVs.
- Credited as a co-author on the abstract of the paper **"MEMS Based Ultrasonic Anemometer for High Altitude Flight"**, Transducers, 2025.
- Designed and automated a data collection experiment that maintained consistent results with a **±0.1878 mm** error in distance and **±0.6454 m/s** in wind velocity.
- Analyzed the correlation between time-of-flight (ToF) and airflow using data modeling, showcasing possibilities for future enhancements aimed at reaching a 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, leading to improved student problem-solving skills and engagement.
- Coordinated the setup of maker spaces in over 20 schools in Rwanda, positively impacting 769 students, and increasing engagement by 37%.
- Trained 42 teachers on hands-on engineering activities, enhancing the ability to implement project-based learning in classrooms.

Projects   *https://www.github.com/pascalcyusa*

TDK CH101 Ultrasonic Sensor Data Collection Automation| Microscale Sensors and Systems Lab
- Learned how to configure the TDK CH101 chip's source code written in C for efficient data collection from the sensors.
- Integrated C code with LabVIEW to automate the data collection process, improving speed and accuracy in sensor data acquisition.
- Used tools like Numpy and matplotlib to analyze the data and make useful correlations to assess the accuracy of the sensors.

Camera Line Follower Robot | Class Project
- Designed an autonomous robot controlled by a Raspberry Pi that follows a line using image processing with OpenCV library.
- Added remote control capabilities through a web server build using Flask for a more user-friendly and streamlined operation.

LEGO & Arduino | Engineering Education
- 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 IoT devices into hands-on learning experiences.

Splendor Game | Intro to Computer Science
- 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
- Created a portfolio website using Vercel and Tailwind CSS for a responsive and user-friendly design.
- Deployed the website to Netlify and maintained GitHub integration for version control.

Languages & Skills

Languages: C/C++, Python, JavaScript, MATLAB, LabVIEW.

Technologies: HTML/CSS, React, Next.js, Vercel, Tailwind CSS.

Libraries/Tools: Pandas, Numpy, OpenCV, Git/Github.