

# Senuka Abeysinghe

513-526-1408

sabeysi2@jh.edu

linkedin.com/in/senukaabeysinghe

github.com/Senuka28

## Education

### Johns Hopkins University

May 2027

Baltimore, MD

BS in Computer Science, Applied Mathematics & Statistics

- Relevant Coursework: Data Structures, Algorithms, Full-Stack JavaScript, C/C++ Programming, Bootcamp: MATLAB, Computer Systems, Java, Biology, Biology Lab, Probability & Statistics, Linear Algebra, Calculus III

## Technical Skills

Languages: Python, C/C++, SQL, JavaScript, TypeScript, Bash, Java, HTML/CSS, MATLAB

Technologies: Git, GitHub Actions, Linux/Unix, Docker, VS Code, Postman, Flask, React, Node.js/Express, REST APIs

Concepts: APIs, SDLC, Full-Stack, OOP, Unit/Integration Testing, CI/CD, Debugging, Agile, Machine Learning

## Experience

### Crown

May 2025 – Aug 2025

Software Engineer Intern

New Bremen, OH

- Implemented an intelligent **multithreading** architecture for vehicle communication software in **C++** using the **Boost library**, parallelizing message handling, sensor data processing, and logging to improve throughput by over 40%
- Designed an automated **unit testing** framework for Structured Text, leveraging **Python** scripts to generate and execute 490+ test files for embedded code, fully integrated into **CI/CD pipeline** to reduce manual QA effort
- Engineered a time synchronization protocol over the **CANBUS** for vehicle networks using **C++, Lua** scripts for sync logic, and **Python** for telemetry validation to achieve sub-microsecond clock alignment across device nodes

### SMARTS Lab – Johns Hopkins University

Jan 2025 – Oct 2025

Research Software Engineer

Baltimore, MD

- Architected a **deep learning** differentiable rendering pipeline in **Python** with **PyTorch3D** and **OpenCV**, refining a surgical tool's 6-DoF pose using silhouette and keypoint alignment to reduce manual annotation
- Automated GPU-accelerated stereo data preprocessing in **Colab**, documenting and reporting experiments while handling calibration parsing, image processing/undistortion, and batching 68,000 frames for simulation purposes
- Validated **deep learning** driven pose estimation at 25 FPS on live endoscopic video, achieving over 83% alignment accuracy for real-time surgical guidance

### AMLI Lab – University of Cincinnati

May 2021 – June 2024

Research Software Engineer

Cincinnati, OH

- Developed **MATLAB** pipelines to convert genomic sequences into 2D images and trained classifiers (k-NN, Naive Bayes, k-means) to distinguish plant virus types with up to 92% classification accuracy
- Applied **machine learning** and **deep learning** models on clinical and histopathological data to predict breast cancer types, achieving up to 97.2% accuracy using Random Forest with PCA-based feature selection
- 2x published in the Advances in Artificial Intelligence and Machine Learning Journal

### Clarity

May 2024 – Aug 2024

Data Engineer Intern

Austin, TX

- Supported Clarity's **AI-driven** breast cancer risk prediction initiative using **R** to assist with data preparation and analysis on mammography datasets across 5,000+ patient records
- Led outreach coordination with imaging personnel at 60+ U.S. healthcare facilities to assist in integrating mammography units, RIS, and PACS systems

## Projects

### Nonprofit Ops Dashboard | NodeJS, ReactJS, ExpressJS, HTML, CSS, JavaScript, SQL

- Created a **full-stack web app** using **React**, **NodeJS**, **ExpressJS**, and **MySQL** to manage grant funding, volunteer records, and staff timesheets for nonprofit organizations
- Implemented timesheet tracking and dynamic data views, reducing manual entry by over 60% and streamlining data flow across **database**, **front-end**, and **back-end** layers

### CourseVote | Python, TypeScript, Flask, Supabase, PostgreSQL

- Built a data pipeline using **Python**, **SQL**, and **REST APIs** to extract, clean, and structure over 2,600+ course evaluation records, including comments, ratings, and difficulty metrics
- Automated course summary generation using **OpenAI API**, outputs written to database for frontend integration