

Asmitha Sathya

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EDUCATION

Johns Hopkins University - Baltimore, MD 21218

MSE Computer Science

BS Computer Science, BS Biomedical Engineering | GPA: 3.70/4.00

Honors: Dean's List, Departmental Honors (CS + BME), General Honors, Linda Trinh Memorial Award

Relevant Coursework: Explainable AI Design, Human-Robot Interaction, AI-ML for Global Health, Computer Vision, Computational Genomics, Biomedical Data Science, Algorithms, Data Structures, Computer System Fundamentals, Linear Algebra, Prob/Stats

Graduation: May 2026

Graduation: May 2025

SKILLS & PROFICIENCIES

Programming Languages: Python, Java, C, C++, C#, R, MATLAB, JavaScript, XAML

Technologies: Git, Docker, Simulink, Visual Studio, CMake, .NET, Linux, Unity, React, Bitbucket, Azure DevOps, Arduino, Jira, Helix ALM

WORK EXPERIENCE

Software Engineering Intern at Medtronic | *Unity, C#, MATLAB, Simulink, Docker, DDS, Git, Visual Studio*

Jun 2025 - Present

- Built MATLAB/Simulink software integration testing simulation for Hugo RAS system, enabling hardware-free integration testing and reducing validation time by over 90%.
- Designed Unity VR simulation with movement tracking, logging of 9-DOF data, and playback functionality for formative user study.
- Developed mouse-controlled Hugo digital twin in Unity with accurate kinematics and physics movement for engineering purposes.

Software Engineering Intern at Triple Ring Technologies | *C#, XAML, Figma, .NET, GitHub*

Jun 2024 - Aug 2024

- Utilized C# and XAML to develop GUI applications for 2 diagnostic medical devices intended for market release.
- Developed 100 black box and code inspection test cases in Helix for traceability and acceleration of software verification by 50%.
- Enhanced Subversion to GitHub repository migration pipeline for non-standard directories, improving effectiveness by 10%.
- Nominated to attend Stanford Biodesign's rigorous 2024 Dx/D Healthtech Workshop, engaging with industry leaders.

JHU Advanced Robotics and Computationally Augmented Environments Lab | *Unity, C#, and Blender*

Sep 2023 - May 2024

- Developed a programming interface using Unity, C#, and Blender to position a dynamic 3D model of the Loop-X mobile imaging robot along 6 coordinates.
- Reduced integration time of 3D digital twin Operating Room with virtual reality by 15%, enhancing surgical training.

Data Analytics Intern at National Institute of Standards and Technology | *R, STRmix, ggplot2, Plotly*

Aug 2023 - May 2024

- Developed over 30 unique R scripts to curate, analyze, and visualize large-scale forensic DNA profiling data for publication.
- Programmed novel R pipeline that increased speed of labeling and differentiation of allelic and stutter peaks by 90%.
- Presented literature on challenges facing interpretation of casework DNA evidence to NIST experts for scope validation.

JHU Department of Biomedical Engineering Ahn Lab | *R, Python, TCGA, OpenCRAVAT, GDC, SigmaPlot*

Jul 2021 - May 2024

- Leveraged R and Python to create over 40 data visualizations for analysis and contributed to 2 publications on whole-exome and duplex sequencing of primary and recurrent glioblastoma tumors.
- Utilized GDC API, GeneCards API, and Python to create pipeline to annotate mutations with TCGA data and clinical significance.
- Produced 3 TCGA computational tutorials and taught to 150 students in biochemistry course (CTEI Instructional Enhancement Grant).

JHU Bioinformatics and Computational Biology Lab | *Biopython, Snakemake, Linux, Unix*

Jun 2023 - Dec 2023

- Employed Biopython and Snakemake in a Unix environment to analyze 177 barcode sequences generated by new multiplex detection of protein-protein interaction technology.
- Optimized mapping of merged and paired-end reads to reference genome, reducing processing time by 20%.

RELEVANT PROJECTS

Predicting Hemoglobin Levels for Anemia Severity Assessment | *Python, Pandas, PyTorch, OpenCV, scikit-learn*

Fall 2024

- Developed model for non-invasive anemia diagnosis via cellphone images of patients' palm, fingernails, tongue, and conjunctiva.
- Utilized YOLOv8 and EfficientNet for segmentation and regression in Python to determine hemoglobin level, achieving RMSE of 1.34.

Query Ability of Probabilistic Data Structures | *Python, PyProbables, Sourmash API, Sequence Bloom Tree*

Fall 2024

- Implemented bloom filter, quotient filter, and cuckoo filter manually with faster insertion time than PyProbables library functions.
- Developed efficient k-mer table storage method for large datasets using Sequence Bloom Tree and Sourmash API in Python.

LEADERSHIP

Johns Hopkins Design Team (Stomify) - 2024-25 Design Team Leader

Aug 2024 - Present

- Led cross-functional team of 7 undergraduate students in developing a novel urostomy baseplate and pouch system for leakage management and enhanced clothing adaptability to mitigate current urostomy pouch complications.
- Dedicated 12 months towards design process to validate needs, map to design requirements, and conduct verification/validation.
- Awarded Linda Trinh Memorial Award and secured \$1000 from Johns Hopkins University Summer Bridge Fund.

Computational Cardiology Lab Teaching Assistant

Aug 2024 - Dec 2024

- Instructed 120 undergraduate students in labs corresponding to analyzing electrocardiogram data and the cardiovascular system.
- Dedicated 12 hours weekly to explaining complex material and providing instructional feedback on student reports.