Yashas Bhat

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EDUCATION

University of Maryland   College Park, MD
Bachelor of Science in Computer Science, Minor in Mathematics   *Aug. 2023 – May 2027*
GPA: 3.52/4.0
Coursework: Algorithms, Computer Systems, Functional Programming, Object-Oriented Programming, Data Science

TECHNICAL SKILLS

Languages: Python, Java, TypeScript, JavaScript, Rust, OCaml, C/C++, SQL (Postgres)
Web & Backend (Full-stack): React, Node.js, Next.js, FastAPI, Flask, Tokio, Tailwind CSS, JUnit, HTML/CSS
Developer Tools & Systems: Git, Docker, Linux/UNIX, Amazon Web Services (AWS), Embedded Systems (Raspberry Pi, Arduino, IoT)

EXPERIENCE

Children's National Hospital   August 2024 – May 2025
Student Developer   *College Park, MD*

- Architected an end-to-end IoT platform, **TrachSense**, to provide real-time airway alerts for tracheostomy patients.
- Designed a real-time data pipeline that ingested raw CO_2 readings from Arduino sensors, processed anomalies on a Raspberry Pi (**TrachHub**), and streamed alerts to a mobile app, addressing a leading cause of hospital readmissions.
- Achieved a < 1 **second** patient monitoring latency by implementing a WebSocket streaming layer between the Raspberry Pi and mobile app.
- Built a **breathing-pattern analysis engine** with hysteresis and statistical thresholds (standard deviation, RMS, flatline ratio) to accurately classify breathing states, reducing false alerts by **10%**.

Bharat Petroleum Corporation Limited   Dec. 2024 – Jan 2025
Software Engineering Intern   *Mumbai, India*

- Built an anomaly detection framework combining DBSCAN clustering and Isolation Forest, **identifying 950+** potentially fraudulent distributors from **320K+ digital customer verification** transactions and improving fraud detection accuracy over rule-based checks.
- Designed a feature extraction pipeline with **6** behavioral features, applying PCA visualization to surface irregular distributor behavior and weekday fraud trends for auditors.

Amazon Project Kuiper   Jan. 2024 – May 2024
Student Developer   *College Park, MD*

- Engineered a suite of **3** core APIs for **Amazon's Project Kuiper**, enabling critical functionalities, including Collision Data Message consensus, operator registration, and dynamic trust score management, culminating in a successful product launch in an accelerated timeline.
- Developed the FastAPI/PostgreSQL backend for a blockchain-integrated **Space Safety Visualizer** equipping **10+** satellite operators with real-time collision prediction as a key member of a **13**-engineer team.
- Implemented a blockchain-secured data synchronization system powering the **European Space Agency's (ESA)** satellite collision-avoidance rules, ensuring real-time sharing of critical metrics (collision probability, velocity vectors, time-of-closest approach) across FastAPI/PostgreSQL and Hyperledger World State.

PROJECTS & OPEN SOURCE

Canvas MCP | *MCP, TypeScript*   July 2025

- Built a **Model Context Protocol (MCP)** server for Canvas (ELMS) to provide students with instant, natural-language answers to coursework questions via clients like Claude Desktop & Cursor.
- Implemented a scalable API handler supporting **12+ Canvas endpoints**, allowing the MCP to answer questions spanning multiple assignments across respective courses, and broadening LMS coverage for more complex features.

Link Walker | *Rust*   March 2023

- Built and released a high-performance Rust CLI on Cargo for concurrent web crawling with DFS, validating **500+** links in under **10** seconds through optimized caching and rate-limiting for large domains.