

# Asma Begum

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## Education & Coursework

### University of Washington Seattle, Paul G. Allen School of Computer Science

*Expected Grad: June 2027*

BS, Computer Science, Math minor – Cumulative GPA: 3.75 | 5x Dean's List

**Coursework:** Data Structures, Algorithms, Data Management, Machine Learning, Artificial Intelligence, Computer & Network Security, Discrete Math I & II, Linear Algebra, System & Software Tools, Hardware Software Interface

## Experience

### Visa | Software Development Engineer Intern

*June 2025 – Aug 2025*

- Built a TypeScript-based internal developer tool integrated with VS Code to assist engineers in generating and validating production service code, adopted by 20+ internal developers.
- Designed API integrations with internal validation services to automatically test generated code, reducing manual review cycles by 30%.
- Collaborated with engineers and product stakeholders across 3 teams to gather requirements, iterate on features, and conduct user testing.
- Shipped production-ready tooling supporting Open VisaNet development, improving developer workflows used in systems handling.

### The Verse | Software Development Intern

*June 2024 – Aug 2024*

- Developed a MERN webapp in Agile environment, primarily though creating & deploying a Node.js backend with MongoDB.
- Architected database with scalability and security focus, enabling safe support for 1100+ users.
- Developed a frontend audio frequency modulation system with React. Implemented frontend features & refactored existing webapp.
- Created a secure JWT authentication/authorization pipeline and managed frontend & backend production environment.

### Paul G. Allen School of CSE | Undergraduate Teaching Assistant

*Sept 2024 – Present*

- Supporting instruction for CSE 123, introductory computer science course, assisting students with Java programming concepts including object-oriented design, recursion, and tree-based data structures.
- Built and maintained Python-based tooling to automate grading workflows, improving turnaround time and scaling evaluation for hundreds of weekly submissions.

### Husky Coding Project | Software Lead

*Sept 2024 – Mar 2025*

- Led backend and infrastructure development in Python for student-run software projects, architecting services on Linux and guiding system design decisions. Led a 10-member engineering team and coordinated with a 40+ member organization.
- Designed and implemented a data-driven project involving model training and evaluation in Python, delivering a production-ready solution presented to external partners.

### CodeBit | Co-Founder, Co-Director

*Jan 2023 – Aug 2023*

- Launched and led a student-run nonprofit focused on expanding access to programming education, organizing and mentoring a multi-disciplinary team of instructors and volunteers.
- Planned and delivered a structured curriculum in Python and Java, creating 52 hours of instructional material and securing over \$7,000 in funding for multiple partner charities.

## Research

### Makeability Lab | University of Washington | Undergraduate Research Intern

*Sept 2024 – Present*

- Conduct research under Professor Jon Froelich & Lead Engineer Michael Saugstad on Project Sidewalk, a web platform collecting large-scale computer vision labels used by Google Maps for accessibility-aware route generation. Maintain core services and APIs.
- Perform full-stack development using JavaScript, Scala (Slick framework) & PostgreSQL, primarily addressing backend issues and deploying weekly production updates.
- Built features improving the sidewalk labeling workflow and implemented APIs for storing and querying complex, structured user data.

### University of Washington | Undergraduate Research Assistant

*Jan 2025 – Mar 2025*

- Co-authored a research paper on techniques for improving accessibility of data visualizations for blind users with PhD student Ather Sharif & Dr. Jacob Wobbrock. Submitted to ASSETS 2025 and currently under review.
- Performed literature reviews, assisted in interview and survey design, analyzed collected data, and contributed to academic writing and revisions.

## Projects

### BraveCat | iOS Color-Matching Game | [GitHub](#) |

*Sept 2024 – Nov 2024*

- Developed & published iOS mobile game using Swift and SpriteKit with color-matching whack-a-mole gameplay mechanics.
- Designed core game logic handling user input, collision detection, and state transitions across multiple gameplay scenes.
- Structured assets and application flow within Xcode, producing a complete, runnable iOS app with clean separation of game components.

### StudyPro | Database Design & Schema | [GitHub](#) |

*Nov 2024 – Feb 2025*

- Designed a normalized relational database to model tutoring sessions, students, tutors, and subjects for a university learning center.
- Created ER diagrams and implemented schemas, ingesting real-world CSV datasets to populate and validate database integrity.
- Wrote SQL queries to analyze attendance trends, session history, and tutor utilization, enabling accurate reporting and insights.

## Skills

- **Languages:** Java, Python, JavaScript, C, C++, Scala, TypeScript, PostgreSQL, MySQL, DynamoDB, MongoDB, C#, HTML5/CSS
- **Frameworks/Libraries:** Node & Express.js, Flask, React, Slick, OpenCV, PyTorch, Pandas, Numpy
- **Developer Tools/Misc Skills:** Git, Docker, AWS, Kubernetes, Azure, Heroku, CRON, Shell, Linux, OOP, REST APIs