Eli Boyden

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Professional Summary

Computer Science and Mathematics student at UVA (GPA: 3.95) with hands-on experience in full-stack development using React, Node, Express, Python, Flask, Java, MongoDB and PostgreSQL. Skilled in testing (JUnit, Jest), and machine learning with strong foundations in algorithms, data structures, and statistical modeling. Proficient in Git and Agile practices; passionate about solving real-world problems through software engineering, mathematics and research.

Skills

Databases: PostgreSQL, MongoDB, SQLite
Programming Languages: Python, Java, JavaScript, TypeScript, C, SQL, HTML, CSS, SCSS (Sass)
Frameworks & Libraries: React.js, Node.js, Express.js, Flask, Jest, JUnit, Selenium, Gradle
Tools & Platforms: : Git, GitHub, Render, Cloudflare Pages, Figma, Obsidian, Quartz
Concepts & Methodologies: Object-Oriented Programming (OOP), Agile Development, Unit Testing, Accessibility Compliance, RESTful APIs, CI/CD Basics, Machine Learning (Neural Networks)

Education

University of Virginia, School of Engineering and Applied Science August 2023 – May 2027

***BS in Computer Science**, Cybersecurity Focal Path, Data Science Minor*

- Relevant Coursework: Data Structures, Algorithms, Software Development Essentials, Computer Systems Architecture, Discrete Mathematics

***BA in Mathematics**, Concentration in Probability and Statistics*

- Relevant Coursework: Probability, Linear Algebra, Differential Equations, Real Analysis, Complex Analysis

Cumulative Grade Point Average: 3.947/4.00

Experience

Full Stack Software Engineer Intern May 2025 – August 2025

YSTEM and Chess *Remote*

- Wrote and maintained automated unit and integration tests using Jest, reducing React front-end production bugs and increasing development team test coverage by over 60%.
- Leading accessibility improvements across React components, increasing compliance with WCAG standards, and improving usability for screen readers, keyboard navigation, and users with visual impairments.

Application Software Developer May 2025

Mathesis Technology *Hybrid Charlottesville, VA*

- Designing and launching secure departmental course sites using JavaScript, HTML, CSS, and Obsidian, improving access and reducing manual workload for faculty.
- Integrating Cloudflare Pages authentication into custom-built educational platforms, enabling secure student logins while reducing security errors and unauthorized access

Projects

TAGuide | *PostgreSQL, Python, Encryption (bcrypt, Fernet), Flask, React*

- A Full-Stack end-to-end encrypted application for running Selenium web scraping jobs to automate data collection from Gradescope, enabling tracking and visualization of Teaching Assistant (TA) grading progress.
- Initial prototypes of this tool helped identify and subsequently correct grading work imbalances of up to 25%

Transformer Neural Network | *Java, JUnit, Git*

- Achieved 97% accuracy on MNIST dataset and 91% on heart attack prediction by optimizing matrix operations and refining model architecture.
- Validated and tested implementations with custom unit tests using JUnit, ensuring model stability and correctness through structured experimentation.

Extracurricular Involvement

Affiliations: Computer Networking Security at UVA, Association for Computing Machinery, First Year Players
Achievements: Rodman Scholar, Deans List (All semesters)