

Orion Bloomfield

Software Engineer and Student Researcher
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Education

- Brown University** Providence, RI
• *Bachelor of Science in Computer Science* Sep. 2020 - May 2024
Concurrent Masters of Science in Computer Science GPA: 3.95/4
• **Related Coursework:** Deep Learning, Advanced Computer Graphics, Graduate Computer Graphics, Software Engineering, Computational Molecular Bio., Recent Applications of Probability and Statistics, Honors Linear Algebra

Experience

- Amazon Web Services** Seattle, WA
• *Software Development Engineer Intern - AWS Support* June 2023 - August 2023
 - > Built new features on support dashboard with **over 100,000 active users** to sync event progress with internal task boards.
 - > Created **AWS Serverless CDK** Typescript pipeline for deploying business logic via new **Lambdas** and **event streams**.
 - > Optimized internal task board API client to batch edits together, **reducing latency by 5x**, allowing for real-time sync
- Microsoft** Redmond, WA
• *Software Engineering Intern - Azure Data Usage Billing Team* June 2022 - August 2022
 - > Built **vscode extension** with **language modeling** for enhanced code actions, elevating **Azure IaaS** customer experience.
 - > Implemented code completion, navigation, and error handling in a **C# backend service**, communicating to the client as well as other Azure **microservices** through a JSON-RPC language server protocol
- Brown University** Providence, RI
• *Research Assistant - Dr. Rubenstein Theoretical Chemistry Group* May 2022 - August 2022
 - > Built a webapp to host and support queries to a curated dataset of **protein-peptide interaction** pairs
 - > Implementing interactive viewers for **3D structure**, sequence, and markov model dynamics data.
 - > Set up **RESTful API** hooks and database filters for efficient parameter-specific data collection by researchers.
- Care New England** Providence, RI
• *Research Assistant - Dr. Uzun's Genomics and Machine Intelligence Lab* August 2021 - June 2022
 - > Developed an interactive **React** application that generates **multi-layer graph networks** from **protein interactomes**.
 - > Implemented **caching** and **multi-threading** to optimize **Java** server host, reducing computation time by over **75%**
 - > Innovated and ported over CLI services actively used by **hundreds** of researchers.

Teaching

- Teaching Assistant - Introduction to Computer Graphics:** Fall 2023 - Conduct weekly office hours, created **scene viewer** webapp for enhanced **3D scene rendering** learning experience, automated grading scene similarity through **computer vision** techniques.
- Teaching Assistant - Introduction to Software Engineering:** Spring 2023 - Held weekly office hours, provided regular mentor check-ups for project group. Developed novel course assignments and features using a **Java Spark + Typescript + React** full-stack.
- Teaching Assistant - Accelerating Chemical Discovery:** Spring 2023 - Headed new content creation with autograding using **otter-grader**. Led weekly office hours, check-ins to support students through challenging applications of **sklearn**, **deepChem**, and **tensorflow**.

Projects

- Brown Puzzlehunt:** Spring 2023 - Sole developer on **Django** site to host Brown's annual **puzzle competition**. Implemented interactive puzzle unlock and hint structure with **PostgreSQL**. Monitored and hotfixed site to run smoothly for **650+ unique participants**.
- desktop-world:** Fall 2022 - **Three.js** webapp displaying a **procedurally-generated** terrain in a bowl. Using primarily **custom GPU shaders** in **OpenGL** for better performance, implements selective bloom, particle systems, and boids.
- Proteinarium:** Fall 2021 - Present - **React** webapp built from the ground up with **D3.js** to visualize **graph clustering** algorithms on **protein interactome** data. Configured host of **Red Hat Linux** to scale, cache, and distribute **Java** backend services evenly.
- peaCTF:** Summer 2019, 2020 - Founded **capture-the-flag** style web competition for aspiring **Cybersecurity** students. Attended by over **2,000** high school participants across the globe. Designed and implemented **React** frontend. Led problem design team.

Leadership

- Brown Puzzle Club - Co-founder:** August 2021 - Present - Lead a small team to design and test **competitive word/logic puzzles** for Brown Puzzlehunt. Tech lead and art director for website. Run **scavenger hunts**, **escape rooms** for Brown student events. Amongst Brown alumni, **placed 7th out of 393 teams** in the **2022 MIT Mystery Hunt**.
- The Higher Keys - Co-President:** August 2021 - Present - Brown's **oldest** all-gender acapella group. Coordinate and plan **local performances**, with some events amassing over a **third** of the Brown student body. Network and contract **professional gigs**, touring yearly across the United States. Handle **funding** and **reimbursements**.

Skills

Java, C#, C++, JavaScript, TypeScript, Python, Django, Flask, React, Next.js, Express.js, Node.js, Three.js, OpenGL, GLSL, Golang, Machine Learning, TensorFlow, NumPy, SQLite, PostgreSQL, AWS Serverless, AWS CDK, Docker, Git, Unit Testing