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