Aiden Kerr

Fourth Year, Computer Science

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TECHNICAL SKILLS

Languages: C++, GLSL, Python, Javascript
Libraries/Frameworks: OpenGL, Numpy, Pandas, Z3, React, Next.js, Node.js, Express.js
Testing/Debugging: GDB, Valgrind, Google Test, Jest, Cypress, Mocha, React Testing Library, JUnit
Other Technologies: MySQL, Git, CTF Cybersecurity Challenges, Amazon Web Services (AWS)

TECHNICAL EXPERIENCE

Software Engineer Intern   May 2022 – Aug. 2022
SAP, Concur Travel   *Vancouver, BC*
- Configured deployment and networking using Kubernetes, Helm, Docker, Cloudformation and shell scripts.
- Upgraded service to use TLS, wrote custom script to manage certificates.
- Reconfigured a redundant AWS instance for development and production environments, saving $500 a year.

Software Engineer Intern   Sept. 2021 – Apr. 2022
Realtor.com   *Vancouver, BC*
- Developed multiple React/Next.js shareable components and pages written in both Javascript and Typescript, including building the legend and modal for the wildfire risk map.
- Prevented page-crashing bug by adding missing points to incomplete polygons in the properties map.
- Fixed bug where state would go out of sync on slow internet connections by validating order of responses.
- Reduced page load times by reworking API calls with GraphQL to cut number of calls by 50%.
- Mitigated the risk of cross-site scripting by sanitizing results intended for rendering on the page.
- Prevented unnecessary redirects and 404s by fixing URL generation and parsing inconsistencies.
- Maintained over 80% test coverage using Jest and React Testing Library.

TECHNICAL PROJECTS

BF Interpreter | *C++*   May. 2024
- Created an interpreter for the BF language written in C++.
- Improved performance by preprocessing instructions, storing possible instruction jump addresses.
- Tested using the GoogleTest unit testing library.

Balloonium | *C++, OpenGL, GLSL*   Sep. 2023 – Dec. 2023
- Awarded first place out of 18 teams, judged by video game industry professionals, for a 2D game built in team of 6 in a custom engine using C++ and OpenGL with an Entity Component System.
- Implemented electric player attack with custom electricity shader made by displacing UV coordinates with noise, using RGB texture channels to encode visual information.
- Created shaded sprites using the Blinn-Phong model with normal maps and configurable material properties.
- Implemented smooth camera movement by offsetting position based on velocity and interpolating between frames.

Water Demo | *C++, OpenGL, GLSL*   Aug. 2023
- Displaced vertices by sum of multiple sine functions to mimic water movement.
- Applied calculus to compute surface normals in GPU fragment shader in GLSL for directional lighting with specular effects.

Kerrdit | *Javascript, React, Node.js, Express, MySQL*   July 2021 – Aug. 2021
- Created a Reddit-like application with users, posts, and communities.
- Developed a full-stack React web application using Express to build a REST API.
- Implemented SQL queries to manage user data, enable post creation and facilitate voting functionality.

EDUCATION

The University of British Columbia   Vancouver, BC
Bachelor of Science in Computer Science, GPA: 3.8   *Sept. 2019 – May 2025*
- Vice President Internal - Computer Science Student Society
- Teaching Assistant: CPSC 314 - Computer Graphics