Lisa Brothers

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EXPERIENCE

Full Stack Developer | Checker Software

May 2023 - December 2024, Vancouver, BC

- Continued development of Diffchecker, a robust web and desktop application that streamlines file comparison across multiple formats including text and PDF, providing users with visually intuitive difference highlighting.
- Built a responsive, user-friendly interface for a major UI redesign, ensuring a seamless experience across various devices and screen sizes.
- Boosted PDF parsing performance by compiling a C++ library to WebAssembly for integration into a web worker, coupled with development of a custom TypeScript wrapper for seamless integration.
- Created a custom cross-platform PDF renderer and optimized document diffing algorithm, enabling visual comparison of differences to significantly speed up document review.
- Demonstrated versatile problem-solving skills to swiftly resolve diverse technical challenges across web and desktop full-stack environments.
- **Technologies:** TypeScript, React, Redux, Next.js, Express, Node, PostgreSQL, Electron, WebAssembly, Web Workers

Junior Software Engineer | Trulioo

September 2021 - August 2022, Vancouver, BC

- Developed as part of a team involved in leading new micro frontend projects using Scrum methodology.
- Created and refactored components to enhance reusability and assisted in package deployment.
- Applied test-driven development practices using Jest and Visual Studio Test Explorer.
- Collaborated with Product and UI/UX teams to align feature development with project timelines.
- Demonstrated adaptability by independently contributing to a separate team's micro frontend project, leveraging skills acquired from primary team experience.
- **Technologies:** TypeScript, React, Node, Jest, CSS, Docker, JFrog Artifactory, ASP.NET/C#, MySQL

PROJECTS

Detoxolotl, a Precision Platformer Game with Custom Engine

github.com/Detoxolotl/Detoxolotl, January 2024 - April 2024

- Architected and implemented ~90% of the rendering pipeline for a 2D pixel art platformer using OpenGL, building the graphics engine from the ground up.
- Engineered a sophisticated texture atlas rendering system with batched draw calls, implementing custom vertex buffer layouts and index buffer optimizations for efficient sprite rendering.
- Developed custom GLSL shaders including fragment shaders for vignette post-processing effects and vertex shaders for sprite sheet frame selection and UV coordinate manipulation.
- Designed and implemented a high-performance particle system utilizing OpenGL instanced rendering, achieving efficient rendering of thousands of particles with minimal draw calls.
- Built a flexible particle emitter system with configurable parameters for velocity, lifetime, color gradients, and spawn patterns, creating visually rich effects through randomized generation.
- Optimized rendering performance through strategic use of buffer objects, minimizing state changes, and implementing efficient memory management patterns.
- **Technologies:** C++, OpenGL (GLFW/GL3W), GLSL, SDL

Incode, Breaking the Language Barrier for Programming Education | nwHacks 2023

devpost.com/software/incode-yprvmi, January 2023

- Developed and deployed a full-stack web app enabling users to submit prompts in any language and receive valid code with comments and variable names in the input language, democratizing access to programming education.
- Designed and developed an eye-catching frontend using GSAP animations and integrated with the backend.
- **Awards:** Best Use of Microsoft Cloud for Social Impact, Best Design
- **Technologies:** React, GSAP, Microsoft Azure, Python, Git

A Toasty Space, Spreading Positivity Through Anonymous Messages | cmd-f 2021

devpost.com/software/a-toasty-space, March 2021

- Developed and deployed a platform in which users can sign up to post and view anonymous positive messages.
- Designed and developed a cozy, cute frontend and integrated with Firebase.
- Developed in a team of 4 as the most experienced web developer and assisted teammates throughout tasks.
- **Awards:** Human Connection (Arista), Popularity Prize, Best Domain (Domain.com)
- **Technologies:** React, React Router, Firebase, CSS, HTML, Figma, Git

INVOLVEMENT

Software Team Co-Lead | UBC Uncrewed Aircraft Systems

September 2023 - August 2024

- Lead a team of 15 student developers in planning, organizing, and creating multiple projects.
- Managed timelines, breaking down complex tasks and delegated responsibilities based on team members' strengths and interests.
- Collaborated with Aircraft and Payload Leads in order to design software suited to hardware needs for competition.
- Provided technical leadership through mentoring, hands-on troubleshooting, and debugging support.
- **Awards:** AEAC 2024 - 2nd Place Phase 1 (Design Paper Competition), 3rd Place Overall
- **Technologies:** TypeScript, React, Redux, Node, Python, Material UI, WebMapService, GeoJSON, Git, ArduPilot

EDUCATION

Bachelor of Science in Computer Science and Mathematics | University of British Columbia

Vancouver, BC, May 2020 - April 2026

- 4th year, in progress

University Transfer Program | Vancouver Community College

Vancouver, BC, September 2019 - April 2020

- Received VCC Faculty Association Award

SKILLS

Graphics & Rendering - C++, OpenGL, WebGL, GLSL, Three.js, GPU APIs, Custom Graphics Pipeline
Programming - Java, C, Python
Web - TypeScript, Node, React, Redux, Next.js, Express, Electron, Web Workers, WebAssembly
Testing - JUnit, Jest, Mocha/Chai, GDB, TDD
Tools - Git, Docker, Netlify, Azure