

# Sean Zhang

🏠 seanzhang.ca   ✉ q434zhan@uwaterloo.ca   📧 sean01zhang   🌐 sean01zhang

## SKILLS

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**Languages:** Python, C, C++, Rust, JavaScript, TypeScript  
**Tools & Frameworks:** React.js, Node.js, Next.js, Docker, MongoDB, Git, Tailwind, Egui

## EDUCATION

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**University of Waterloo** Waterloo, Ontario  
*Bachelor of Computer Science* Sep 2019 - Apr 2025  
**Coursework:** Computer Graphics, Algorithms, Operating Systems

## EXPERIENCE

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**Vivid Seats** Sep 2023 - Dec 2023  
*Incoming Software Engineer Intern*

- Working on SEO using Next.js

**Cynorix** Jan 2023 - Apr 2023  
*Software Developer Intern*

- Reduced component line count by **over 50%** by refactoring class based components into functional components using **React.js**.
- Configured and deployed user authentication using **Firebase** and **Google Auth API**.
- Converted a **68,000** line JQuery project to React.js and **Bootstrap** in **3 weeks**.

**Lambdus** Sep 2021 - Aug 2022  
*Software Engineer and Co-founder*


- Architected a web app using **Next.js**, **Express.js**, and **MongoDB** to make animating more accessible to individual animators.
- Containerized application using **Docker**, enforcing consistent deployment behaviour across different environments.
- Pitched idea in front of a panel of venture capitalists and judges with varying technical backgrounds at the **semi-finals** of Velocity \$5k pitch competition.

## PROJECTS


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**Research Assistant**

- Exploring performance improvements to GPU ray tracing.

**ReSTIR DI** 

- Created an interactive ray-traced renderer based on Nvidia's ReSTIR paper using **Rust** and **Egui**.
- Accelerated ray intersection using bounding volume hierarchies with surface area heuristic.

**Path Tracing** 

- Implemented a brute-force path tracer using **C++** to render an environment composed of spheres with different materials.
- Improved the path tracer using **Metal compute shaders**, speeding up render times by **60 times**.