

# Tanson Lee

Phone Number: (647) - 787 - 0353

Personal Website: <https://tansonlee.me>

GitHub: <https://github.com/tansonlee>

LinkedIn: <https://linkedin.com/in/tansonlee>

Email: [t227lee@uwaterloo.ca](mailto:t227lee@uwaterloo.ca)

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## Skills

- **Languages:** Typescript, C++, C, Python, JavaScript, Bash, GLSL, SQL, R
- **Technologies:** Redis, GraphQL, PostgreSQL, OpenGL, Next.js, React, Node.js
- **Tools:** Git, Linux, Stripe, AWS S3, WebSocket, CRON

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## Experience

### Global Illumination — Manhattan, New York

Jan – Apr 2023

Software Engineer

- Developed performant **OpenGL shaders** to implement Screen Space Reflections, resulting in stunning water reflections. Moreover, elevated water visuals by dynamically altering water color and fog based on environmental factors.
- Extended the in-house **physics engine** to support swimming and ladder climbing, resulting in a more realistic experience.
- Enhanced the **NPC behavior infrastructure** to support Newtonian Physics, allowing for 3-dimensional movement. Implemented flocking algorithms to achieve realistic fish and bird NPCs, improving the visual appeal of the world.
- Developed **player buffs** using the ECS architecture, enhancing game dynamics and creative possibility. Implemented regeneration, super speed, and night vision which can be activated via special foods, clothing, and environments.
- Improved the **questing infrastructure** by adding a talk-to-NPC step allowing for dialog, gifts, and rewards improving the immersive experience. Additionally, introduced other features such as map indicators, progress tracking, and internal tooling.

### Paper — San Francisco, California

May – Aug 2022

Software Engineer

(part-time) Sept – Dec 2022

- Designed and built an **auction system** for digital goods. Used Redis to decrease blockchain read times by 94% and message queues to decrease write failures by 95%.
- Overhauled the **auth system** to support orgs with members and roles, improving collaboration for over 85% of customers.
- Built the infrastructure to add **locales to the SDK** and added French support, expanding reach to European customers.
- Redesigned the **onboarding process** to include liveness, document, and proprietary risk checks for legal compliance.
- Contributed significantly to product discussions, user-facing developer documentation, and developer support.

### Dreamschools — Toronto, Ontario

Sept – Dec 2021

Software Developer

- Managed all technical operations including code reviews, deploys, and providing technical guidance on business decisions.
- Created functionality for coupons, gift cards, refunds, and taxes in the checkout system which processes \$25,000/month.
- Reduced tech debt in the checkout, financial reports, and modals improving modularity and shrinking module sizes by 45%.

### Sciex — Toronto, Ontario

Aug 2019

Software Developer

- Implemented a Snorkel labeling algorithm with Numpy, reducing analysis time by 98% for mass spectrometry data.

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## Projects

### Ray Tracer

<https://github.com/tansonlee/ray-tracer>

- Built a multi-threaded ray tracing engine in C++ with support for multiple materials such as metal, plastic, and glass.

### PyScript – An Interpreted & Compiled Programming Language

<https://github.com/tansonlee/PyScript>

- Developed a scripting language with all core features including variables, functions, loops, conditionals, I/O, and comments.
- Implemented a compiler and assembler to translate down to a custom machine language which runs on a custom runtime.

### Notifyr – Developer Tool to Notify Your Customers

<https://notifyr.vercel.app/>

- Created a developer tool allowing SASS applications to send notifications to their customers.
- Includes an SDK, API, and dashboard as well as developer documentation.

### Fooder – Collaborative Food Choice Application

<https://fooderweb.netlify.app/>

- Built a real-time matching app that helps friends decide where to eat using web sockets and rooms.

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## Education

### University of Waterloo, Bachelor of Computer Science

GPA: 4.0

- **Courses:** Operating Systems, Data Structures & Algorithms, Compilers & Assemblers, Object Oriented Programming.
- Hack the North mentor & participant, Delta Hacks participant, Intramural volleyball player.