THOMAS LUC

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EDUCATION

Candidate for Computer Engineering, University of Waterloo **2022 - PRESENT**

Cumulative GPA: 3.9 / 4.0

Nortel Networks Undergraduate Scholarship (3500$), University of Waterloo

SKILLS

Languages	Python, Javascript, C++, HTML/CSS, SQL
Technologies	Git, Figma, PostgreSQL, VS Code, Visual Studio, Blender, RESTful APIs
Frameworks	Node.js, React.js, Express.js, Next.js, Three.js

PROJECTS

Room Designer Discord Bot

Node.js, Express.js, Three.js, PostgreSQL, RESTful APIs

- Developed a bot using **Node.js** in an asyncronous paradigm to enable non-blocking API calls made with **Axios**.
- Built an **Express.js** back-end to real-time render custom **Blender** models using **Three.js** in response to bot requests.
- Constructed a **PostgreSQL** database remotely queried by bot application using **node-postgres** to store BLOBs.

Hackathon Website (Hack The Ridge)

Node.js, React.js, Next.js, Three.js, Chakra UI, GSAP

- Created website with **Next.js** to advertise personal hackathon attracting hundreds of visitors and **80** registrants.
- Prototyped with **Figma** and created animations based on Bézier interpolation with **GSAP** for seamless transitions.
- Leveraged **React**, incorporating components from **Chakra UI** (custom styled with **Emotion**) for optimized workflow.
- Rendered **Blender** models in real-time to browser using **Three.js** with custom **WebGL** shaders written in **GLSL**.

Rhythm Game Beatmap Generator

Python, Pygame, Selenium, Requests, RESTful APIs

- Designed a game tool in **Python** using **OOP**, creating animated GUI with **Pygame** for interactive user experience.
- Fetched user info from API with **Requests** and followed **OAuth 2.0** to authorize users by sending POST requests.
- Integrated **Selenium** and **WebDriver** to automatically download game files by simulating browser interactions.

The Green Reaper

Python, Pygame

- Isometric five-level story game made in **Python** with **Pygame**, implementing a grid spell-casting system for combat.
- Forged a level system mapping ASCII characters from text files to in-game terrain to generate new custom maps.
- Implemented a custom path-finding algorithm for enemies enabling improved navigation and increased realism.

EXPERIENCE

President of Programming Club **Sep 2021 - Jun 2022**
Iroquois Ridge High School Oakville, Ontario

- Led all club operations and gave frequent **Python** programming lessons to over **100** students, teaching data structures (e.g trees and graphs), recursion and dynamic programming.
- Created an extensive curriculum in **Python** to mentor beginner students on video game design with **Pygame**.

Main Classroom Assistant **Sep 2018 - Sep 2021**
Kumon Institute Oakville, Ontario

- Spearheaded **hundreds** of tutoring sessions with Grade 1 - 12 students teaching arithmetic, algebra and calculus.
- Crafted suitable lesson plans for students while accommodating parent concerns to enhance academic performance.