Daniel Liu

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projects

DiscourseVR⌗ : Multiplayer VR Debate 📅 Apr 2021

- Built a **multiplayer VR** application with networked voice and text chat using the **Unity Game Engine** along with packages like Mirror, Dissonance, and RockVR
- Created a companion **Vue** webapp using **Nuxt** and **TailwindCSS** to playback the recorded debate, along with a **Google speech-to-text API** generated live transcript
- Served video files through **NGINX** and wrote a **shell script** to automatically format videos with **ffmpeg** and upload to the main server via **rsync**

ChatSpaceVR⌗ : Student Mental Wellness Chatspace 📅 Mar 2021

- Developed a friendly **VR Chatroom** using the **Unity Game Engine** for the **Windows Mixed Reality Headset** to relieve the stress of university students, winning the **$1000 Mental Health Prize** at WinHacks 2021
- Featured proximity voice chat, hand-tracked VR avatars and three interactive mini-games (pool, ping-pong and air hockey)

Totally Accurate Delivery Simulator⌗ : Open World Racing Game 📅 Apr 2020

- Built an expansive city complete with a city park, a graveyard, and a ship harbor with a fully functional pedestrian and traffic system in **72 hours** for Ludum Dare 46
- Experimented with **HLSL** water shaders and pixelated rendering techniques using the **Unity Game Engine**

Lego Studio VR⌗ : Interactive Lego Sandbox 📅 Nov 2019

- Developed an immersive Lego Sandbox to design models virtually using **Unity Game Engine**
- Featured ~50 bricks with classic Lego color options to build with, along with an intuitive selection wheel to enhance the user friendliness

Soulless⌗ : Platformer Game Made in 72 Hours 📅 Oct 2019

- Created a side-scrolling platformer game for Ludum Dare 45 game jam in under **72 hours** that placed in the **top 20** most played games out of **2500+** submissions
- Made use of the **Unity Game Engine** and created all game assets like sounds effects, sprites and animations from scratch

skills

Languages

programming C, C++, C#, Haskell, Java, JavaScript/TypeScript, Python

markup HTML, CSS, LaTeX, Roff

other Unix Shell/Bash, SQL, GraphQL, HLSL

Tools/Frameworks

frontend Vue, React, Django, Bootstrap

backend Node, Express, MongoDB, PostgreSQL

linux Vim, Git, NGINX, Docker, Arch Linux

game dev Unity, LibGDX, Blender, Tiled

education

University of Waterloo 📅 2020–2025

Bachelor's of Computer Science with Digital Hardware

interests

Hackathons & Game Jams

Participated and submitted to 10+ hackathons and 5+ game jams

Manga Scanlation

Translate, clean, and typeset a variety of Japanese manga

experience

Canadian Young Physicist's Tournament : Bronze Medalist 📅 2019–2020

- Designed and presented experiments to investigate fascinating physics phenomena like magnetic levitation, throwing card aerodynamics, and the Coanda Effect
- Used **Python** libraries like **Pandas** and **NumPy** to supplement physical models, as well as **Matplotlib** to generate a of variety graphs

CodeReach : Teaching Assistant 📅 2018–2019

- Organized after school program to teach grades 7-8 students the fundamentals of **Python** scripting and **Pygame** graphics programming
- Prepared **20+ weeks** of lecture material, assignment questions and projects