

Daniel Liu

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projects

Takoyaki 🍱 : Cloud Hosting Platform

📅 Nov 2021-present

- Cloud hosting platform that lets users create **virtual private servers** on demand and with features like automatic snapshots and support for various Linux distributions
- **Golang** backend that interfaces with **PostgreSQL** database along with a utility CLI to run database migrations and authorize virtual machine creation requests
- Makes use of **Libvirt** and **CloudInit** cloud images to quickly build a preconfigured virtual machine. Also **dockerized** and configured with **Envoy** as a reverse proxy

A9E : ASCII Game Engine

📅 Dec 2021

- Game library written in **C++** for creating games that run on the terminal using **Ncurses**
- Features an **entity component system** (ECS), full color support, as well as a rigid body **physics engine** with collision detection and handling

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**

9it-cli 🍷 : Lightweight Version Control System

📅 Jan 2021

- Implemented a **version control system** from scratch in **C** that supports the essential features like staging, committing, reverting and branching
- Involved binary I/O, command line argument parsing, and packaging for various popular **linux distributions** like debian, arch and gentoo

experience

Enzuzo Data Privacy : Full Stack Web Developer

📅 2021

- Introduced **multilingual support** to flagship cookiebar application and **ReactJS** admin app, bringing in customers from new regions like Japan and Greece
- Wrote migrations in **Golang** using **Gorm** to introduce a property bag model for storing customer settings in **PostgreSQL** database as well as validation for existing data

UW Computer Science Club : Term Com

📅 2021-present

- Used **Ansible** to automate the creation of development VMs for both **Qemu** and **Libvirt**
- Worked on **Golang** script to sync Linux package repositories with the **CSC mirror** 🍷

TOHacks : Backend Developer

📅 2021-present

- **VueJS** web app for judges to intuitively grade submitted hackathon projects
- Built **Express Typescript** backend from the ground up with **OpenAPI** based request and response validation, type generation and client sdk

skills

Languages

programming C, C++, Go, Haskell, Java, Javascript/Typescript, Python, Rust
markup HTML, CSS, \LaTeX , Roff
other Unix Shell/Bash, Makefile, SQL

Tools/Frameworks

frontend Vue, React, Django
backend Node, Express, PostgreSQL, GraphQL, OpenAPI/Swagger, ORM
game dev Unity, Blender
sysadmin/devops Ansible, Docker, Envoy, NGINX, Libvirt/KVM, Linux (Arch, Debian)

education

University of Waterloo

📅 2020-2025

Bachelor's of Computer Science with Digital Hardware

interests

Hackathons and Game Jams

Participated and submitted to 20+ hackathons winning 6 times, as well as 5+ game jams

Manga Scanlation

Translate, clean, and typeset a variety of Japanese manga