

Shi Qi

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Education

University of Waterloo

COMPUTER ENGINEERING, UNDERGRADUATE

President's Scholarship - \$2000

Waterloo, ON, Canada

2022 - present

Skills

Languages Python, C++, C#, Java, JavaScript, TypeScript

Deep Learning PyTorch, sklearn, HuggingFace

Web HTML, CSS, React, Django, Plotly, Dash, Express, Next, REST, TRPC

Embedded System STM32, Arduino, Raspberry Pi, VHDL

Database SQL, Prisma, JDBC, SQLite

Work Experience

Friendlier

Guelph, ON

AUTOMATION

Sep. 2023 - Dec. 2023

- Fully designed an automated solution that scans and sorts various types of containers, using a Raspberry Pi, a barcode scanner, servo motors and conveyor belts.
- Independently implemented a functional iteration of the design, replacing the original manual sorting process and increased the throughput from **300** unit per hour to **750** unit per hour.
- Developed a concurrent model in **Python** to handle IO, scheduler and data fetching in parallel, applying the producer-consumer pattern to communicate between threads.
- Automate operation logging and data collection, and designed a pipeline to generate reports and visualizations, using **Google Scripts**.

Data2Discovery

Remote - Bloomington, US

SOFTWARE DEVELOPPER

Feb. 2023 - May. 2023

- Maintained and developed a data visualization dashboard using the **Dash** library.
- Patched design flaws, leveraged proper usage of the **Dash** library, and eliminated linearly increasing request time.
- Researched on the **Transformer model**, and hosted workshops discussing its internal workings and limitations.
- Lead projects among three data science graduate teams, contributed to decision making and organized regular internal communications.

Projects

SimpleTeleport 🔗

JAVA, SPIGOT, SQLITE, MAVEN

2023

- Developed a **Spigot plugin** for Minecraft 1.20, managing home, warp and player teleports while retaining the vanilla experience.
- Maintain a **SQLite** database through **JDBC** to handle data storage.
- Added custom teleport animation with sound effects, potion effects, particle effects and animated bossbar.
- Published on SpigotMC, with currently 73 downloads after a month of release.

PoetryGPT 🔗

PYTHON, PYTORCH

2023

- Built a decoder only **Transformer** model in **PyTorch** that generates Chinese Poems.
- Cleaned a dataset of 10000 poems from rare characters to reduce overfitting, and built a character level tokenizer over its vocabulary.

Reinforcement Learning in 2D Shooter 🔗

PYTHON, PYGAME, PYTORCH

2022

- Created a 2D top-down arena shooter game in **PyGame** with custom sprites and collision logics.
- Worked as a team to implement **Q learning** with **PyTorch** and trained an AI that shoots moving targets in the game.

SVI Scheduler 🔗

MariHacks 2.0 - Hackathon

PYTHON, TYPESCRIPT

2021

- Developed a **Google Sheet plugin** that automatically balances work load across different workers based on their availabilities, using **greedy algorithm** and priority queue.
- Deployed at a translation service for allophone patients, and is proven to be functional through worker feedbacks.