

# Shi Qi

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## Skills

|                           |                                                               |
|---------------------------|---------------------------------------------------------------|
| <b>Languages</b>          | Python, Java, TypeScript, JavaScript, C++, C#, R              |
| <b>Frontend / Backend</b> | React, Next, Astro, Solid, Express, FastAPI, Django, Tailwind |
| <b>Database</b>           | SQLite, PostgreSQL, PocketBase, MongoDB, Drizzle, Prisma      |
| <b>Test / CI</b>          | PyTest, Pandera, Docker, GitHub Actions                       |
| <b>Deep Learning</b>      | PyTorch, sklearn, HuggingFace, OpenCV                         |
| <b>Embedded System</b>    | ARM Assembly, STM32, Arduino, Raspberry Pi, VHDL              |

## Work Experience

### Burkett Statistical Consulting

Remote - Ottawa, ON

SOFTWARE DEVELOPER

May. 2024 - Aug. 2024

- Applied **Simulated Annealing Search** to perform schedule optimization, where a discrete space of permuted schedules is searched.
- Improved the metrics by approximately **20%**, by reducing search space, improving neighbor selection, and tuning cost function.
- Built an automated **CI** pipeline that benchmarks the performance of the optimizer algorithm using **GitHub Actions**.
- Developed machine learning models in **R** in forecasting and classification tasks, achieving positive skill scores in comparison to the baseline model.

### Friendlier

Guelph, ON

AUTOMATION ENGINEER

Sep. 2023 - Dec. 2023

- Fully designed an intake processing conveyor solution that automates scanning and sorting of 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 increasing the throughput from **300** units per hour to **750** units 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 DEVELOPER

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 the **Transformer** model, and hosted workshops discussing its internal workings and limitations.

## Projects

### Chirp 🔗

Typescript, React, Next, Drizzle, PostgreSQL, NextAuth

2024

- Developed an emoji only social media platform using **Next**.
- Leveraged **server action** as a type-safe data layer to interact with the **PostgreSQL** database, using **Drizzle** as the ORM.
- Integrated **NextAuth** for user authentication and authorization through OAuth.

### SimpleTeleport 🔗

Java, Spigot, SQLite, Maven

2023

- Developed a **Spigot plugin** for Minecraft 1.20, managing home, warp and player teleports without compromising 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 an animated bossbar.
- Published on SpigotMC, with over 100 downloads.

Check out my site for more 🔗

## Education

### University of Waterloo

Waterloo, ON, Canada

Computer Engineering, Undergraduate

2022 - present

President's Scholarship - \$2000