

Daniel Qu

SOFTWARE DEVELOPER

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Skills

Languages Javascript, Typescript, Python, C, C++, Bash, SQL, HTML, CSS, Rust
Frameworks React, React Native, Redux, Express, Flutter
Tools Git, Unix Command Line, Jenkins, REST API

Education

University of Waterloo - 92% GPA

B.A.Sc. IN HONOURS MECHATRONICS ENGINEERING

Sep. 2020 - Present

Waterloo, Canada

- Computer Structures and Real Time Systems, Microprocessors and Digital Logic, Data Structures and Algorithms (C++)

Work Experience

Playstation - Sony Interactive Entertainment

FRONT END SOFTWARE DEVELOPER

Jan. 2022 - Present

React Native, Redux, Python, Jenkins

- Improved working efficiency for QA engineers by developing Python script to monitor status of over 2000 test cases.
- Achieved first prize in global company-wide hackathon by creating a calendar app for the Playstation.
- Supported development of Playstation checkout system by fixing React Native bugs and automating end-to-end tests.

Midnight Sun - University of Waterloo

FIRMWARE DEVELOPER

Nov. 2021 - Present

C, FreeRTOS, Python

- Migrated build system from GNU Make to Python Scons, improving extensibility of linting, formatting, and project setup.
- Ensured continuous voltage during pedal board operation of solar car by writing unit tests in C.

Dreamschools

FULL STACK SOFTWARE DEVELOPER

May. 2021 - Aug. 2021

React, Express, PostgreSQL, Stripe

- Overhauled checkout flow by redesigning React UI, supporting more payment methods, and migrating away from deprecated API's.
- Improved order history API response time by 10x by parallelizing requests in Express and leveraging Stripe API features.
- Designed and implemented complete and flexible notification system with the help of GetStream API.
- Developed an email/SMS communication system between organizations and students using Twilio and PostgreSQL.
- Took initiative to improve code quality by extracting reusable components and reorganizing file structure.

Projects

Midnight Sun Driver Dashboard

MIDNIGHT SUN SOLAR CAR STRATEGY TEAM

Apr. - Sep. 2021

Flutter, Dart, Python

- Built digital dashboard for Midnight Sun's solar vehicle, including speedometer, battery life, target speed, and more.
- Performed CAN integration testing using mock CAN messages and Python driver code.
- Effectively used Flutter animations to direct driver attention when appropriate.

Waterloo Engineering Competition 2020

PROGRAMMING DIVISION

Nov. 2020

Python

- Programmed internal logic for robots to efficiently move and clean rectangular floors.
- Minimized fuel usage by choosing optimal robot starting locations and greedy pathfinding.
- Clearly communicated team's algorithmic decisions and solutions to a panel of judges using appropriate visuals.

Solving SuperGhost

PERSONAL PROJECT

Oct. 2020

ExpressJS, Socket.io, PostgreSQL, Python

- Solved word game 'SuperGhost' algorithmically by constructing 400,000-node directed graph.
- Created a prototype for real-time multiplayer SuperGhost using Javascript and Socket.io.
- Developed a backend server and database to support shareable game codes and game rooms.

Extra: Project Demos

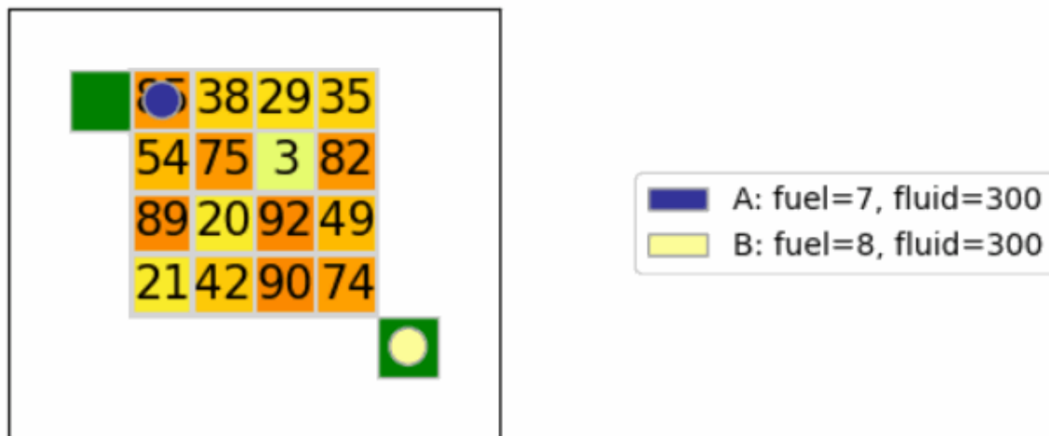
Visit <https://tinyurl.com/daniel-qu-portfolio> for short video demonstrations.

Midnight Sun Driver Dashboard



- Display used as dashboard for Midnight Sun's Solar Car.
- Shows a subtle animation to alert driver when recommended speed changes.
- Used gradients effectively to meet design specifications.

Waterloo Engineering Competition 2020 - Programming Division



- Carefully considered and developed algorithm to choose robot starting locations (green tiles).
- Maximized competition score by maximizing tiles cleaned, minimizing fuel, fluid, and number of robots used.

Spotify-Track

```
=====3:49:00 AM=====
~~ [REDACTED] is listening to - Lovesick by Trevor Daniel
=====3:49:20 AM=====
~~ [REDACTED] is listening to - Anyone by SEVENTEEN
~~ [REDACTED] is listening to - Angel Baby by Troye Sivan
~~ [REDACTED] is listening to - 永遠に by Little Glee Monster
=====3:49:40 AM=====
=====3:50:00 AM=====
~~ [REDACTED] is listening to - Stereo Hearts (feat. Adam Levine) by Gym Class Heroes
~~ [REDACTED] is listening to - La thune by Angèle
~~ [REDACTED] is listening to - Are You Bored Yet? (feat. Clairo) by Wallows
~~ [REDACTED] is listening to - Come to Life by Kanye West
=====3:50:20 AM=====
~~ [REDACTED] is listening to - California Dreamin' - Single Version by The Mamas & The Papas
~~ [REDACTED] is listening to - 青花瓷 by Jay Chou
~~ [REDACTED] is listening to - Jocelyn Flores by XXXTENTACION
~~ [REDACTED] is listening to - Evergreen by softy
~~ [REDACTED] is listening to - Catching On (feat. Nevve) - B-Sides Remix by Elephante
=====3:50:40 AM=====
~~ [REDACTED] is listening to - Rumor by Moore Kismet
~~ [REDACTED] is listening to - Passionfruit - Stripped Version by Josh Salvato
```

- Spotify does not officially support an API for friend listening activity.
- Used open-source API wrapper to track and store friend listening histories in MongoDB.