(778) 237-5533
keeganmjgreen@gmail.com
Ottawa, ON

KEEGAN GREEN

MOTIVATED · ADAPTABLE · DEPENDABLE

SKILLSET

Software Engineering

- Python
- Java
- TypeScript and React
- C/C++
- Relational databases (PostgreSQL) and ORMs
- Go
- Basic Rust
- Git
- Linux
- Docker
- CI/CD

Electrical Systems

- Power and signal electronics analysis
- Digital design
- Microcontrollers and single-board computers
- Real-time systems

WHERE I EXCEL

- Showing initiative in end-to-end problem solving
- Creating reusable, well-tested, and fast software
- Considering all aspects of a problem, from technical to end user implications

EXPERIENCE

Optimization Engineer 2022 – Present
BluWave~ai Ottawa, ON

- Played a critical role on teams of AI engineers, programmers, and frontend developers to bring software from conception to deployment in the smart grid and EV fleet spaces
- Developed, deployed, and maintained an optimization service in Python to reduce strain on the electrical grid by controlling grid-scale batteries and hundreds of EVs
  - Created an algorithm that controls EVs' charging to consume power when clean energy is in abundance
- Developed and deployed software to optimally control a solar-powered hydrogen production and storage system, extending its component lifespan while generating electricity from green hydrogen at high-demand times
- Collaboratively developed, and deployed, a cloud service that sends timely and helpful charging station recommendations to EV taxi drivers based on location
  - Helped progress the pilot project with the taxi company to the next stage by creating a real-time simulator of EV taxi fleet operations, showcased at COP28
- Developed and deployed prototype optimizers of electric bus charging operations for multiple transit agencies in simulation
  - Created optimization models for minimizing peak energy use and cost in a model predictive control scheme, used in a simulation study for numerous school bus depots
- Took the lead on incorporating automated CI/CD, testing, and type checking processes to improve code quality
- Developed libraries, used in multiple projects, to standardize code for data processing, simulation, and SQL database integration
- Trained new team members on topics including optimization algorithms, effective unit testing and other best practices
- Developed simulation environments in Python, Java, and Go, including a REST API for integration with other microservices

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EDUCATION

BASc Mechatronic Systems Engineering 2016 – 2021
Simon Fraser University Vancouver, BC

- 3.67 CGPA; President's Honour Roll, three-time Dean's Honour Roll

PERSONAL PROJECTS

Author of Multiple Python Libraries 2024 – Present

- Applications span signal resampling, Pandas/dataclasses interoperability, and ease of writing explainable, traceable, and auditable Python programs with a React-based frontend integration

Simulation of Mid-Air Refueling of a Hydrogen-Powered Airliner 2023 – Present

- Design and feasibility study determining how to refuel a sustainably-powered commercial airliner
- Developed a 3D computer simulation of mid-air refueling by AT200 cargo UAVs
- Created a flight controller UI mockup

Cluedo Game Simulator and AI Assistant 2023

- Wrote software guaranteed to beat human players at Cluedo by solving the game as a Boolean satisfiability problem
- Made an interactive player dashboard to visualize game and simulation results

IoT Integration of a Hydroponic Farm 2022 – 2023

- Created an IoT dashboard and Python-based interface for remote monitoring & control
- Developed a farm process model for minimizing consumption of energy and resources
- Completed the first phase on-time to successfully control the farm across Canada

Energy Yield Model of a Gas Turbine 2021

- Performed statistical analysis and trained machine learning models on sensor data
- Verified, visualized, and reported model performances

Model of Fuel Cell EV Air Supply System for Optimization 2020

- Identified the potential for optimization among car manufacturers
- Defined an empirical relationship between fuel cell humidity and performance
- Numerically modeled turbo compressor to feed fuel cell oxygen

Optimization of a Telescopic Handler Mechanism 2020

- Applications in structural engineering and robotics
- Verified and visualized solution to 1000-variable optimization problem obtained using tuned gradient-based and genetic algorithms