

Kai Ferrall

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Languages – Python 3, Node.js, JavaScript/HTML5/CSS3, Java, C, Assembly (NIOS 2)

Frameworks/Libraries – React, Express, OpenCV, NumPy, Pandas, jQuery, Redux, JUnit

Tools/Other – Jira, Redis, MongoDB & MySQL, Google Cloud & Amazon Web Services, Regex, Heroku, Git, technical writing, API integration/development, web security, microservice design/development, JWT token authentication

EXPERIENCE

ecobee – Software Engineer Intern. *Toronto, ON.* 05/2020 – current
Designed and developed data pipelines for complex systems. Integrated systems and pipelines with Google Cloud (GCP). Created an automated system to monitor a drop shipping program with Python and GCP.

Pitch Development – Full Stack Web Developer. *Kingston, ON.* 05/2019 – 09/2019
Architected and developed full stack web applications. Integrated with complex API's to provide advanced features such as online subscription service. Worked with designers and stakeholders. Developed image/video microservice.

Englinks – Engineering Tutor. *Queen's University at Kingston, ON.* 05/2019 – 04/2020
Tutored fellow engineers in C programming, MATLAB, calculus and linear algebra. Covered topics such as pointers, search/sort algorithms, path integrals, matrices and more.

PROJECTS & WORK

Viral Disease Modelled via Opinion Dynamics. *Statistical Model Simulation, Project.* 2018
In a team of 4 developed a system and GUI in MATLAB to model the spread of viral diseases. The model consisted of simulated agent movement and infectivity was modelled with Opinion Dynamics. Real world data was web scraped to be used in the model. Outputs were informatively animated with Python.
[Python, MATLAB, Numpy, Pandas, GUI's], [[see my website for source code](#)]

CMS Online Subscription Platform. *Web Application, Professional Work.* 2019
Created a custom content management system and media microservice for HeadtoHead.ca. Including custom subscription functionality through the Stripe API. Worked along with client and designers throughout development. [NodeJS, Express, React, MongoDB, Stripe API], [<https://portal.headtohead.ca/>]

Web Cam Object Detection Model. *Object Detection Model, Project.* 2019
In a team of 3 used Yolo3D to create a machine learning model along with a Flask web cam server. The server took live client video and streamed the object detection model result back to the client. [Python, Flask, machine learning, OpenCV, Yolo3D], [<https://github.com/kaiferrall/QHacks-Server>]

Feedback. *Web Application, Project.* 2017/2018
Created a web application for professors/presenters to garner feedback from audiences more easily. Developed RESTFUL json API to serve application, with full API and frontend JWT authentication. Developed interactive React/Redux app for frontend. See GitHub for link to live application. [NodeJS, Express, React, MongoDB, Redux], [<https://github.com/kaiferrall/FeedBack>]

EDUCATION

Queen's University. 2017 – 2022 (Professional internship)

Bachelor of Applied Science. Applied Mathematics and Computer Engineering

Relevant Courses. Data Structures, Digital & Embedded Systems, Control theory, Signal & Systems theory, Calculus 1, 2 & 3, Computer Architecture, Probability 1 & 2, Linear Algebra 1 & 2, OOP for engineers.