

# Kai Ferrall

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## SKILLS

**Languages** — Python 3, Node.js, JavaScript/HTML5/CSS3, Java, C

**Frameworks/Libraries** — Express, React, Redux, OpenCV, NumPy, pandas, jQuery, Junit

**Tools/Other** — Jira, MongoDB & MySQL, Redis, Google Cloud & AWS, API creation/integration, microservice design/dev, regex

## EXPERIENCE

**ecobee** — Software Engineer Intern

05/20 - present

Working on automated RMA system, estimated savings of **\$2 million per year**.

Developed drop-ship data pipeline with **GCP & SFTP** to reduce error costs, processing ~ **200 files per day**.

**Pitch Development** — Full Stack Web Developer

05/19 - 09/19

Developed generalized media microservice, saving ~ **40 hours** of manual work.

Created cache service with Redis, on average **saving 176ms per authenticated request**.

## PROJECTS & WORK

**Viral Disease Model**, Opinion Dynamics Model

2018

In a team of 4 developed a GUI and model, simulating agent movement and viral disease infection.

Agent infectivity modelled with opinion dynamics.

**Web scraped 10 year historical** data to test model accuracy.

MATLAB, Python, Matplotlib, pandas

[source](#)

**HeadtoHead.ca**, CMS Subscription Platform

2019

Developed **full admin and user authentication system** along with subscription platform using Stripe API.

Application has been **live with subscribers for 1.5 years**.

Express, React + Redux, MongoDB, Stripe API

[private github](#) [live application](#)

**CloudTect**, Object Detection Model

2019

For hackathon, in team of 2 developed object detection model and web cam streaming server.

Final model detection accuracy of **96%**.

Yolo3D, OpenCV, Machine Learning, Flask, React

[github](#)

**Feedback**, Web App

2017/2018

Developed anonymous live feedback platform, to allow my professors to garner feedback more easily.

Included live poll results and graphics, unique code for form that closes after set time period.

Used **natural language processing on comments**, to classify as positive or negative.

Express, React + Redux, MongoDB

[github](#) [live application](#)

## EDUCATION

**Queen's University** — BAsC. Applied Mathematics and Computer Engineering (3.1 GPA)

2017 - 2022 (internship)

**Engineering Society Software Development Team** — Team Lead

**Sexual Assault Center of Kingston** — Android App (class project)

**EngLinks** — Engineering Tutor

**Relevant Course Work**

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