



EXPERIENCE

Tesla, Inc. Autopilot Software Engineering Intern

Sep 2018 - Dec 2018

- Starting in September 2018.

Bloomberg LP Software Engineering Intern | Trading Solutions

Jan 2018 - Apr 2018

Bloomberg LP, creator of the ubiquitous [Bloomberg Terminal](#), is the largest financial data company in the world.

- Trained and tuned **XGBoost** boosted decision tree models in Python for anomaly detection in **millions** of automated stateful processes.
- Took initiative to redo existing codebase from scratch; increased accuracy to **over 99%**, corrected methodological bugs, sped up training **over 350%**, added runtime filtering to reduce load & latency **over 80%**, and wrote a code quality guide to ensure future maintainability.
- Project **pitched, demonstrated, and deployed** to clients with cumulatively **over USD\$1 trillion AUM**, with highly positive initial feedback.
- Implemented an experimental **Apache Spark** distributed model training pipeline using PySpark and MLlib on a Spark/HDFS cluster.

Waterloo Hyperloop Team Technical Lead

Sep 2017 - present

Waterloop represents Canada in [SpaceX's Hyperloop Pod Competition](#), developing the technology for a supersonic train spanning the continent.

- Leading a growing team of **over 70 students** in designing an all-new SpaceX Hyperloop Competition 2018 pod. Invited by SpaceX to submit a detailed design package, placing us in the **top 47 out of hundreds of teams worldwide**.
- Facilitating and contributing to work team-wide, including a sophisticated and reliable Hyperloop design expressed in a **131-page design package**, an **in-house build system and standard library**, physical tests of high-power lithium batteries, rare-earth magnets, and more.
- Coordinated the establishment of nearly daily meetings across all subteams, partnerships with businesses, universities, and government (**raising \$100,000 and counting**), and new branding, website, management structure, outreach programs, and more.

Bloomberg LP Software Engineering Intern | Research Discoverability

May 2017 - Aug 2017

- Developed an **Latent Dirichlet Allocation topic model** on a large document corpus using gensim, sklearn, and Jupyter, rewrote parts of a Python caching service into C++ for speed, and refactored and documented the existing C++ codebase.
- **Featured on the Bloomberg Careers Blog.**

Waterloo Hyperloop Team Software Systems Lead and Web Lead

Jan 2017 - Sep 2017

- Designed, implemented, and tested Waterloo's control system with a team of 5, including a WebSockets/UART telemetry pipeline, C++ state machine, and React dashboard. Placed **15th out of over 150** teams in the 2017 SpaceX Hyperloop Competition.

PROJECTS

Web Development Projects

Jun 2014 - present

- Wrote **many webapps and websites** in HTML/CSS/JS, NodeJS, and PHP, including [WashU Chemistry Tournament Scorer](#), [Vocative Chat Platform](#), [Math Club Website & Tournament Platform](#), [Science Bowl Database](#), and [LexSciBowl](#).
- Cofounded VitaeDev, a **student-run startup** creating websites for local businesses and nonprofits.

Amazon EC2 Server Suite

Feb 2016 - present

- **Server instrumentation and maintenance** tools in NodeJS, Bash, Go, and other languages, used in production on **~9 websites**.
- Deploys a new NodeJS webapp from source **in a single command** to a process-managed server behind an SSL-secured reverse proxy, with live log monitoring via a [Facebook Messenger bot](#).

C++ Neural Networks

Feb 2015 - present

- Wrote a **neural network and matrix math** library in C++, with optimizations for parallelism.
- Implemented backpropagation, genetic algorithms, and a predator-prey coevolution simulation.

AWARDS

Score of 32 @ Putnam Mathematical Competition rank 326/4640 (median score = 1)

2017-2018

1st Place @ McGill Hacks 2017 Signbot

Jan 2017

Best Hardware Hack @ ECHacks 2016 Sandwich-O-Matic

Nov 2016

Platinum Division US Computing Olympiad

Jan 2016

Silver Medalist US Physics Olympiad

Mar 2016

TOOLKIT

Native speaker: C++, NodeJS (ES6), Python, HTML5, CSS3, JavaScript, Git

Conversationally fluent: C, Java, Go, PHP, Linux, Matlab, SQL, jQuery, Bash, CloudFlare, Scikit-Learn, XGBoost

Curious tourist: AWS, MongoDB, Docker, React, R, TensorFlow, Keras, Nginx, Spark & MLlib

EDUCATION

University of Waterloo Software Engineering, Co-op Class of 2021

- Overloading courses with the intention of earning the **Statistics and Physics minors**
- Carl A. Pollock Engineering Scholarship, Ontario Professional Engineers Foundation Scholarship, President's Scholarship
- Activities: Data Science Club, [The Water Boys A Cappella](#), bouldering, breakdancing