



## EXPERIENCE

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### Bloomberg LP *Software Engineering Intern*

May 2017 - Aug 2017 & Jan 2018 - present

*Bloomberg LP, creator of the ubiquitous Bloomberg Terminal, is the largest financial data company in the world.*

- Training **boosted decision trees** using XGBoost to forecast failures in automatic workflows, with accuracy exceeding 95%.
- Developing an all-new **natural language database search** interface.
- Analyzed a large document corpus using **topic modeling** (gensim, sklearn, jupyter), wrote a NodeJS webapp to crowdsource manual model evaluation, and rewrote a Python service into C++ to merge into the main team codebase.
- **Featured on the Bloomberg Careers Blog.**

### Waterloo Hyperloop Team *Technical Director*

Sep 2017 - present

*Software Systems Lead and Web Lead*

Jan 2017 - Sep 2017

*Waterloo 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 Hyperloop Competition 2018 pod**. Recently selected as **one of the top 47 teams** invited by SpaceX to submit a detailed design, **out of hundreds worldwide**.
- Coordinating and contributing to work team-wide, including a sophisticated Hyperloop design expressed in a **131-page LaTeX engineering report**, nearly daily meetings, partnerships with businesses, universities, and government (**raising \$100,000 and counting**), and entirely new branding, website, management structure, outreach programs, and more.
- As software lead in 2017, designed Waterloo's **first fully-operational control system**, placing **15th out of over 150 teams**.

### SkillFlow *Backend Software Engineer (part-time)*

Jul 2016 - Mar 2017

*SkillFlow is a chatbot startup connecting Slack users into a network of skilled mentors that can answer each other's questions.*

- Helped develop a highly scalable NodeJS stack, with **1000+ peak simultaneous users**, and published **3 open-source modules**.

## PROJECTS

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### 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 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.

### Boole Proof Assistant

Sep 2017 - present

- Rebuilding a **formal verification system** from scratch to replace the *George* system written by the *Logic and Computation* course instructors, adding missing features such as transformational proof verification.

## AWARDS

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**Score of 20 Putnam Mathematical Competition** (median score = 1)

Apr 2017

**1st Place @ McHacks 2017 Signbot**

Jan 2017

**Best Hardware Hack @ ECHacks 2016 Sandwich-O-Matic**

Nov 2016

**2nd Place @ Bloomberg Code B 2017**

Mar 2017

## LANGUAGES & FRAMEWORKS

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

**Conversationally fluent:** C, Java, PHP, Linux, Matlab, SQL, jQuery, Bash, Travis CI

**Curious tourist:** AWS, NoSQL, Docker, React, R, TensorFlow, Keras, Go

## EDUCATION

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

- Overloading 7 courses per term with the intention of earning the **Statistics, Combinatorics & Optimization**, and **Physics** minors.