



EXPERIENCE

Bloomberg LP *Software Engineering Intern*

May 2017 - Aug 2017

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

- Analyzed a large financial document corpus using **NLP techniques in Python** (LDA and LSA topic models using gensim, scikit-learn, jupyter), and wrote a NodeJS webapp to crowdsource manual model evaluation internally.
- Rewrote a Python search service in C++, and refactored, documented, and tested the large existing C++ 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

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

- Spearheading the effort to design an all-new Hyperloop Competition 3 pod with a growing **team of 50+ student engineers**. Currently initiating **mechanical and software design**, recruitment, mentorship, outreach, and more.
- As **software lead**, led 5 team members to design, implement, and test Waterloo's **first-ever fully operational control system**, including a WebSockets/UART telemetry pipeline, C++ state machine, and React dashboard. Code on [GitHub](#).
- As web lead, maintained website and email, automated administrative functions, and mentored new webdevs.
- Earned **15th place out of over 150** teams globally at the August 2017 competition.

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.
- Refactored and documented much of the code, published **3 open-source modules**, and wrote a battery of unit tests.

PROJECTS

Web Development Projects

Jun 2014 - present

- Wrote many webapps and websites in HTML/CSS/JS, NodeJS, and PHP. **WashU Chemistry Tournament Scoring**, **Vocative Chat Platform**, **Math Club Website & Tournament Platform**, **Science Bowl Database**, **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 mostly in NodeJS and Bash, used in production on ≥ 7 websites.
- Includes a **Facebook Messenger bot** to track server events, and a **reverse proxy** integrating CloudFlare HTTPS.

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 2015 - 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

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

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

University of Waterloo Software Engineering Class of 2021 *91.52% average \approx 3.93 GPA*

- Overloading 7 courses per term with the intention of earning the **Statistics Joint Major**.