



# Clive A. Chan

Engineering student looking for a challenge.

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## EXPERIENCE

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- Waterloo Hyperloop Team** 🌐 *Software Systems Lead* Jan 2017 - present
- Canada's only full SpaceX Hyperloop Pod Competition team, with over 60 members. First team in the world to achieve pneumatic levitation. Champion for the development of a full-scale Hyperloop across Canada.
  - Lead ~10 team members, hold weekly meetings, coordinate with other subteams, and orient new recruits.
  - Designed a completely new highly reliable comms system over WebSockets and UART, and a modular onboard system based on Arduino for easy prototyping.
  - Also, as Web Lead, maintain the team's online presence and help automate administrative functions.
  - During Summer 2017, performed all of these roles remotely while in New York.
- Bloomberg LP** 🌐 *Software Engineering Intern* May 2017 - present
- Explored the use of machine learning (specifically, topic modeling) in Python to analyze a large financial document corpus for categorization and search hinting.
  - Having finished early, now working on refactoring parts of a large backend C++ codebase.
- SkillFlow** 🌐 *Backend Software Engineer* Jul 2016 - Mar 2017
- Helped develop highly scalable NodeJS stack, with 1000+ peak users.
  - Built Enterprise edition of core product, refactored and documented much of the code, published 3 open-source modules, and wrote a battery of unit tests.
- Freelance Web Developer** Jun 2014 - always
- Wrote many complex webapps and static websites, including WashU Chemistry Tournament Scoring System, Vocative Chat Platform, Science Bowl Question Database, LexSciBowl, CalcBee, LexHack.
  - Cofounded VitaeDev, a student-run team coding free websites for local nonprofits.

## PROJECTS

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- Amazon EC2 Server Suite** 🌐
- Server maintenance tools using NodeJS and Bash, currently used in production on seven different web apps.
  - Includes a reverse proxy integrating CloudFlare HTTPS, and a Facebook Messenger bot to track server events.
- C++ Neural Networks** 🌐
- Neural network and matrix math library written in C++, with optimizations for vectorization and parallelism.
  - Implemented backpropagation, genetic algorithms, and a predator-prey coevolution simulation.
- Lexington High School Math Team Website** 🌐
- Refactored a 30k+ line PHP codebase, abstracting common functionality, and securing against cyberattacks.
  - Used to coordinate registration, logistics and live scoring for the Lexington Math Tournament, one of New England's largest student-run math competitions.

## TECHNICAL SKILLS & TOOLS

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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

## AWARDS

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### 1st Place @ McHacks 2017 🤖 *Signbot*

- Two-handed robot translating bidirectionally between English speech and ASL.

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

- Voice-controlled sandwich maker, featured on Hackaday, Arduino, and Major League Hacking.

### 2nd Place @ Bloomberg Code B 2017 🤖 *Team DuckDuckGoose*

- Real-time Python AI for a large multiplayer Asteroids-like game.

### Silver Medalist @ US Physics Olympiad

- Ranked in the top 80 or so in the country on the second round of the US-wide physics competition.

### 4th Place Team @ National Science Bowl

- Physics/Math specialist and co-captain of one of the most awarded teams in the nation.

### Platinum Division @ US Computing Olympiad

- Qualified for the highest division of the US-wide computer science competition.

### Score of 20 @ Putnam Mathematical Competition

- One of the most challenging collegiate math competitions, with a typical median score of 0 or 1.

### 1st Place @ Google Games Waterloo 2017 *Team fcf21600f...370*

- Solved challenging algorithmic and CTF-style puzzles.

## LEADERSHIP

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### Waterloo Tech Talks 🤖 *founder*

- Ran a weekly series of student-delivered tech talks, and hosted a co-op info panel with 50+ students in attendance.

### LexHack 🤖 *co-founder & co-director 2x*

- First high school-run hackathon in Massachusetts, attracting 80+ participants and \$3k+ in sponsorships every year.

### OpenSource MakerSpace 🤖 *cofounder*

- Won \$5000 town education grant, cofounding a school-wide engineering lab providing free tools, materials, mentors, and teacher training.

### LexSciBowl 🤖 *founder & co-director 2x*

- Middle school science competition based on National Science Bowl; first student-run event of its kind.

### Lexington Math Tournament 🤖 *director 3x*

- One of New England's largest student-run math competition events, with over 150 participants annually.

## EDUCATION

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### University of Waterloo, Bachelor of Software Engineering, Co-op

- Grade Average 90.41%
- Carl A. Pollock and President's Scholarships

### Harvard Extension School *Multivariable Calculus and Linear Algebra (2013-2014)*

### MOOC coursework including Stanford's *Machine Learning*, Princeton's *Algorithms*