

# JONATHAN LAM

Full-Stack Developer. Linux Programmer. Scheme Enthusiast.  
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## EDUCATION

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**The Cooper Union for the Advancement of Science and Art** New York, NY Projected May 2022  
B.Eng. in Electrical Engineering, Computer Engineering Track;  
Projected Minors in Mathematics and Computer Science; Cumulative GPA 3.97/4.00

**Coursework** Operating Systems, Software Engineering & Large System Design, Computer Architecture, Deep Learning, Digital Logic Design, Linear Algebra, Frequentist ML, Data Structures & Algorithms, AI

**Activities** Math & CS Tutor, MATLAB Instructor, Ping Pong Club President, CUCC Student Operator, Motorsports Electrical Team, TAMID Technical Track, ACM ICPC Participant, IEEEExACM Representative

## EXPERIENCE

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**Express Scripts, Automation and Visualization Intern** Bloomfield, CT May 2020 - August 2020

- Developed a browser extension to encourage efficient time-management for COVID-19 work-from-home scenarios with themable “work personas.” Won second-place intern project.
- Refactored redundancies throughout codebase (Angular 9, NgRx, Angular Material) into Angular modules to improve deployment speed and consistency.

**The Cooper Union, Research Assistant** New York, NY May 2019 - August 2019

- Reduced runtime of simulation of “CRUM” traffic optimization model by over 80%, prevented memory leaks using numpy, pandas libraries.
- Designed client-facing visualization tool using PySide2 (Qt5) and matplotlib.

**Consignmore TRAK, Software Engineering Intern** New York, NY November 2018 - August 2019

- Architected an online platform on the MEAN stack to make the auction process more transparent for both auction houses and consignors.

**Maverick Scientific LLC, Software Engineering Intern** New York, NY July 2018 - November 2018

- Designed buying platform for commercial take-home medical kits using Vue and Bootstrap.
- Integrated Messenger SDK and Shopify API to streamline communication, payment, and shipping.

## PROJECT WORK

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**C++ & Scheme Checkers-Playing AI** October 2020

- Implemented minimax search with alpha-beta pruning, time-based iterative deepening in C++.
- Implemented equivalent algorithm in Lisp (Chez Scheme) and demonstrate similar performance.

**VEIKK Digitizer Driver (and Configuration Utility) for Linux** July 2019 - August 2020

- Developed an open-source Linux driver for VEIKK digitizers using the Linux USBHID API.
- Built C++ configuration tool featuring button, pressure and screen mappings; employs systemd, libevdev, udev, uinput, Qt5, and (q)dbus Linux APIs.
- Chronicled development in a blog series, cooperated with VEIKK representatives and volunteer testers.

**Colorimetric Diabetes Test Strip** New York, NY September 2018 - December 2018

- Worked closely with chemical engineers to design a low-cost color-changing diabetes test strip.
- Developed Android application using regression-based vision to aid color reading accuracy.

**Museum of Mathematics Hackathon** July 2017, July 2018

- Built interactive math exhibits geared towards children involving polynomial regressions, pendulum dynamics, the doppler effect, function graphing, and function periods for the MoMath using JavaScript (Electron, AR.js), Java/Processing, Mathematica, and the MoMath exhibit SDKs.
- Won Math Square (2017, 2018), Dynamic Wall (2018), Wolfram Award (2017), Augmented Reality (2018), and Math Exploration (2018) categories.

## TECHNICAL SKILLS

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**Languages** JavaScript, C, C++, SQL, Python, PHP, HTML, CSS, Java, Scheme, Go, Bash, MATLAB, x86-64 Assembly

**Familiar Technologies/Skills** Node.js, TypeScript, Angular 2+, React.js, Vue.js, Sass, Bootstrap, Angular Material, Redux (NgRx), RxJS, MongoDB, jQuery, GTK+3, Qt5, Numpy, Pandas, Matplotlib, Tensorflow, Linux, KVM/QEMU, CUPL, GIMP, AutoCAD, SOLIDWORKS, L<sup>A</sup>T<sub>E</sub>X, MEAN, MERN, LAMP, full-stack web development, soldering