JONATHAN LAM

Software Engineer
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EDUCATION

The Cooper Union for the Advancement of Science and Art New York, NY — Projected May 2022
B.Eng., M.Eng. in Electrical Engineering, Computer Engineering Track;
Minors in Mathematics and Computer Science; Cumulative GPA: 3.98/4.00

Coursework Operating Systems, Compilers, Computer Networks, Computer Architecture, SICP, Parallel Programming in CUDA, Cloud Computing, Software Engineering and Large System Design, Deep Learning, AI, Frequentist Machine Learning, Digital Logic Design

Activities & Awards Math and CS Tutor, Ping Pong Club President, CUCC Student Operator, ACM ICPC Participant, IEEE×ACM Club Officer, Norman Perry Award, Jesse Sherman Award

EXPERIENCE

MathWorks, Software Engineer Intern Natick, MA — May 2021 - August 2021
- Currently developing tools related to the MATLAB Live Editor.

The Cooper Union, MATLAB Instructor New York, NY — February 2021 - May 2021
- Taught a section of ECE210: MATLAB Seminar, an introduction to MATLAB with applications from the corequisite course ECE211: Signals and Systems.

Express Scripts, Software Engineer 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 with numpy, pandas libraries.
- Designed visualization tool using PySide2 (Qt5) and matplotlib.

Maverick Scientific LLC, Software Engineer 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 and payment.

PROJECT WORK

C99 Compiler — February 2021 - May 2021
- Designed a C compiler comprising a lexer (Flex), LALR(1) parser (Bison), three-address quad generation, and x86_64 target code emission implementing most of the C99 standard.

Checkers-Playing AI — October 2020
- Implemented minimax search with alpha-beta pruning, iterative deepening in Scheme and C++.

Intrinsic Dimensions of Objective Landscapes — November 2020 - December 2020
- Extended the work of Li et al. (2018) to find a lower "intrinsic dimension" (minimum parameterization) of the objective landscape of deep neural networks.
- Achieved slightly lower intrinsic dimension by using a nonlinear (Fourier coefficients) transform.

VEIKK Digitizer Driver — July 2019 - August 2020
- Developed a Linux driver for VEIKK digitizer tablets using USBHID kernel API.
- Built C++ configuration tool featuring button, pressure, and screen mappings; employs systemd, libevdev, udev, uinput, Qt5, and (q)dbus Linux APIs.

Museum of Mathematics Hackathon — July 2017, July 2018
- Built interactive math exhibits designed for children involving polynomial regressions, pendulum dynamics, the doppler effect using AR.js, Electron, Processing, and Mathematica.
- Won Math Square (2017, 2018), Dynamic Wall (2018), Wolfram Award (2017), Augmented Reality (2018), and Math Exploration (2018) categories.

TECHNICAL SKILLS

Languages Javascript, C, C++, Go, Python, Java, Scheme, Common Lisp, MATLAB, x86_64 Assembly, HTML, CSS, SQL

Familiar Technologies Node.js, TypeScript, Angular 2+, Vue, React, Sass, Redux/NgRx, jQuery, Matplotlib, Numpy, Pandas, Tensorflow, Linux, KVM/QEMU, LaTeX, CUDA, AWS, MEAN/MERN/LAMP