

EDUCATION

- Sep. '19–Jun. '20 **Massachusetts Institute of Technology** Cambridge, MA
Masters of Engineering in Computer Science
Designed and implemented RiffShuffle, a highly interactive Markov-model-based system for automatic melody harmonization. Advised by Eran Egozy.
- Sep. '15–Jun. '19 **Massachusetts Institute of Technology** Cambridge, MA
Bachelors of Science in Mathematics & Computer Science (GPA: 5.0/5.0)
Coursework includes: Science, Technology, and Public Policy; Design and Analysis of Algorithms; Advanced Complexity Theory; Algebra II; Computation Structures; Combinatorial Theory; Advanced Algorithms; Machine Learning; Computer System Engineering; Introduction to Topology; Computer Language Engineering; Foundations of Information Policy; Interactive Music Systems; Number Theory I; User Interface Design and Implementation
- '11–June '15 **International Bilingual School at Hsinchu-Science-Park** Hsinchu, Taiwan

EXPERIENCE

- Mar. '23– **Anthropic** Member of Technical Staff
Creating interactive visualizations and running experiments to investigate interpretability of language models.
- Oct. '20–Dec. '22 **Zoom Video Communications** Security Software Engineer
Designed, implemented, and publicly documented new components in Zoom's end-to-end encryption protocol, including consistent identity management and integration with third-party identity providers. Contributed to cryptography RFCs and a novel zero-knowledge key transparency primitive, as well as its within-Zoom implementation.
- Jun. '19–Aug. '19 **SingleStore (formerly memSQL)** Software Engineering Intern
Jun. '18–Aug. '18 Improved SingleStore Studio, a React/Redux web interface for managing SingleStore databases. Co-created Visual Explain, a graphical tool for analyzing the costs and dependencies of operations needed to perform a SQL query, improving engineers' ability to optimize queries. Rendering operations drew on algorithms research as well as designer input.
- Sep. '18–May '18 **Haystack Group, MIT CSAIL** Student Researcher
Implemented server-side rendering with Node.js and Puppeteer for Mavo, a research-based tool for creating stateful, reactive web apps with only HTML and CSS. Advised by Lea Verou.
- Jul. '17–Aug. '17 **MIT Summer Program for Undergraduate Research** Student Researcher
Investigated and simulated (with Python/Sage) algorithms for reconstructing information on trees of noisy channels, a model appearing in information theory, computational biology, and physics. Advised by Ashwin Narayan.
- Oct. '16–Oct. '18 **MIT Educational Studies Program** Head webmin, Treasury (Dec '16–)
Maintained and developed esp.mit.edu, a custom Django site for managing large short-term educational programs serving 5,000+ students and 800+ teachers each year.
- Jun. '16–Aug. '16 **Dropbox** Software Engineering Intern
Implemented a business readiness feature on Dropbox Paper (a collaborative doc editor in TypeScript and React), which allows administrators to sign in as team members.
- Nov. '15–Feb. '17 **Student Information Processing Board, MIT** Keyholder, Treasurer (Feb. '16–Feb. '17)
Developed various Perl plugins for BarnOwl, an IM (zephyr) client. Worked on the SIPB office's music player protocol, also in Perl. Manage finances, budgeting, and office supplies.

LEADERSHIP & ACTIVITIES

- Sep. '17–May '18 **Floor Pi** Hall chair
Coordinated hall meetings, elections, rooming, and budget for a dorm floor of ~30 people.
- Mar. '17– **Galactic Puzzle Hunt** Organizer, programmer
Writing puzzles for and administering an annual week-long online puzzlehunt, most recently for 600+ teams. Set up and administered Puzzletron, PHP software for organizing puzzle-writing, for the team. Later, developed and open-sourced our Django website, gph-site, and puzzle-writing app, Puzzlord, which 10+ other puzzle-writing teams have used.
- Mar. '14–Jan. '15 **Random Fish, MIT** “Technomage” (programmer)
Refactored and added functionality to Puzzletron in preparation for hosting the 2015 MIT Mystery Hunt.
- Oct. 2014 **MIGHTY (high-school program)** Lecturer
Presented two 3-hour lessons introducing algorithms and programming competitions to a class of 10–15 at a weekend interdisciplinary class.
- July 2013 **IMOCamp** Student Teacher
Prepared a mathematics lesson plan and problem set in combinatorics, and taught a morning session (about 3 hours) for a class of 30 at an unofficial mathematics olympiad enrichment camp held by former IMO contestants.

AWARDS

* = team competition

- 2018 **N. Am. Finalist (4th)** Cyber Security Awareness Week Capture-the-Flag*
- 2017 **Finalist (7th/8th)** MIT Battlecode (strategy programming competition)*
N. Am. Finalist (7th) Cyber Security Awareness Week Capture-the-Flag*
- 2016 **Silver medal** ACM International Collegiate Programming Contest*
Honorable Mention William Lowell Putnam Mathematical Competition
- 2015 **Finalist (23rd)** Google Code Jam
Gold medal Asian-Pacific Mathematical Olympiad
- 2014 **Participant** Summer Conference of Tournament of Towns
Gold medal International Olympiad in Informatics
1st HS team Internet Problem Solving Contest*
Silver medal Asia-Pacific Informatics Olympiad
4th place World Scholar's Cup, Taiwan Round*
- 2013 **1st place** National Problem Solving Contest on Internet*
Silver medal Asia-Pacific Mathematical Olympiad
- 2012 **Gold medal** International Mathematical Olympiad
- 2011 **Silver medal** International Mathematical Olympiad
First Prize Tournament of Towns Senior Division
- 2009 **Silver medal** Shing-Tung Yau High School Mathematics Award

LANGUAGES

fluent English
fluent Mandarin Chinese

PROGRAMMING

C++, Python (Django, Numpy, Mypy), JavaScript (TypeScript/Flow, React, Redux), HTML/CSS, Rust, Scala, Haskell, Git, Perl, \LaTeX

INTERESTS

puzzles, puzzlehunts, blogging, singing, guitar