

## Education

Massachusetts Institute of Technology	2019 Aug - 2022 May
GPA 5.00/5.00 • Intended Double Major in Computer Science & Mathematics • Cambridge, MA, USA	
<ul style="list-style-type: none"> <li>Graduate Inference and Information (6.437), Machine Learning (6.036), Advanced Algorithms (6.006, 6.046), Computation Structures (6.004), Algebraic Combinatorics (18.212), Linear and Abstract Algebra (18.06, 18.701, 18.702)</li> <li>TechX HackMIT DevOps, Poker Club Committee, StartLabs Entrepreneurship Club, HMMT Room Czar, SciOly Planning Committee</li> </ul>	

## Experience

Software Engineer Intern • Google, LLC	2020 May - Present
<ul style="list-style-type: none"> <li>Creating template-based SQL translation tools for the BigQuery team, streamlining the data migration process, and implementing a rules engine to generate queries and datasets to guide AI-based SQL projects</li> </ul>	
Machine Learning (6.036) Lab Assistant • MIT Computer Science Department	2020 Jan - 2020 May
<ul style="list-style-type: none"> <li>Created course content, monitored labs, helped students during office hours, and attended teaching staff meetings</li> </ul>	
Software Engineer Intern • Elphi, Inc.	2020 Jan - 2020 Feb
<ul style="list-style-type: none"> <li>Helped integrate data collection, file upload, file download, and preview features with front-end using Firebase and Firestore</li> <li>Developed front-end platform in React, Javascript, CSS, and HTML</li> </ul>	
Software Engineer Intern • Learn Ventures, LLC	2019 May - 2019 Dec
<ul style="list-style-type: none"> <li>Developed algorithms in Java to rank dependencies among thousands of videos and articles</li> <li>Used NLP packages, wiki2vec, and doc2vec to create adaptive learning models in Python</li> </ul>	
Researcher in Combinatorics • MIT Mathematics Department	2016 Jan - 2019 Jan
<ul style="list-style-type: none"> <li>Resolved a decade-old conjecture regarding operations in modular representation theory via geometric combinatorics</li> <li>Discovered results in a permutation-enumeration problem from pure combinatorics</li> </ul>	
Co-founder & President • ABMC, Inc.	2016 Sep - 2019 May
<ul style="list-style-type: none"> <li>Fundraised more than \$6,000 from sponsors, recruited a team of over 30 members, managed all organization and logistics</li> <li>Created online platform that reached students from over a hundred schools across the nation</li> </ul>	

## Honors and Awards

William Lowell Putnam Mathematics Competition Rank 153	2019 - 2020
<ul style="list-style-type: none"> <li>Over 3000 undergraduates across US and Canada participate</li> </ul>	
Four-time USA Math Olympiad Qualifier (USA(J)MO)	2016 - 2019
<ul style="list-style-type: none"> <li>USAMO qualifier in 2018 and 2019, USAJMO qualifier in 2016 and 2017</li> <li>Over 300,000 students participate in the first level of examinations, top 200 qualify for USA(J)MO</li> </ul>	
USA Computing Olympiad Gold Division (USACO)	2018 - 2019
<ul style="list-style-type: none"> <li>Over 3000 students participate, supported languages include Java, Python, and C++</li> </ul>	
US National Chemistry Olympiad Honors (USNCO)	2017 - 2018
<ul style="list-style-type: none"> <li>Over 16,000 students participate in the first level of examinations, top 150 receive honors</li> </ul>	
USA Mathematical Talent Search Gold Medal (USAMTS)	2016 - 2017
<ul style="list-style-type: none"> <li>Top 50 in proof-based mathematics exam</li> </ul>	

## Research

Relationship Between Mullineux Involution and the Generalized Regularization	2020 Mar
Advisor: Guangyi Yue • MIT • <a href="https://www.sciencedirect.com/science/article/pii/S019566981930160X">www.sciencedirect.com/science/article/pii/S019566981930160X</a>	
<ul style="list-style-type: none"> <li>Established equivalence between modular representation theory operators, proposed conjectures regarding the <math>U_q(\widehat{\mathfrak{sl}}_b)</math> module and the q-decomposition numbers</li> <li>Published in <i>European Journal of Combinatorics</i> Volume 85 as first-author, presented at MAA's 2019 Joint Mathematical Meeting</li> </ul>	
Permutations with Up-down Signatures of Nonnegative Partial Sums	2018 May
Advisor: Guangyi Yue • MIT • <a href="https://math.mit.edu/research/highschool/primes/materials/2018">math.mit.edu/research/highschool/primes/materials/2018</a>	
<ul style="list-style-type: none"> <li>Studied fundamental correspondences between ballot permutations and odd permutations, proved combinatorial lemmas toward enumeration theorem</li> </ul>	

## Projects

MCMC-based Cryptogram Solver	2020 April
6.437 Course Project • <a href="https://github.com/AllenWang314/cryptogram-solver">github.com/AllenWang314/cryptogram-solver</a>	
<ul style="list-style-type: none"> <li>Designed and implemented a cryptogram solver using Monte Carlo Markov Chain methods</li> <li>Recognized for unique method of attack, well-written research report, and overall high accuracy in the class</li> </ul>	
StartHacking: Online Platform for Hackathon Beginners	2019 Dec
HackMIT DevOps • <a href="https://github.com/starthacking/starthacking.github.io">github.com/starthacking/starthacking.github.io</a>	
<ul style="list-style-type: none"> <li>Helped maintain codebase and added personalized learning features and coding tutorials</li> </ul>	

## Skills

Languages: Python • Java • C++ • Javascript • HTML • CSS

Tools and Technologies: React • Flask • Django • TensorFlow • PyTorch • Firebase • Firestore • PostgreSQL