

Abraham Ladha

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- EDUCATION**
- Masters of Science, Cybersecurity* Fall 2019 - Spring 2021
Georgia Institute of Technology, Atlanta, GA,
Research areas: Cryptography
Other interests: Logic, Computability, Quantum Computing, Complexity
- Bachelor of Science, Mathematics* Fall 2016 - Spring 2019
Georgia Institute of Technology, Atlanta, GA,
Degree Concentration: Discrete Mathematics
- Dual Major, Mathematics and Computer Science* Fall 2014 - Spring 2016
Armstrong State University, Savannah, GA,
Transferred to Georgia Tech after two years
- RESEARCH EXPERIENCE**
- GABLE: Garbled Autonomous Bots Leveraging Ethereum* Spring 2019 - Fall 2020
Worked under Dr. Vlad Kolesnikov for SANDIA labs for over a year developing, debugging, and testing software. I also provided advisement to SANDIA labs on multiparty computation, and garbled circuits.
The GABLE Report
- Big Data and Quantum Mechanics:* Fall 2018
Trained under Dr. Medford to calculate absorption energies of physical models with Quantum Espresso, on the PACE supercomputing cluster.
vip.gatech.edu/teams/big-data-and-quantum-mechanics
- Private Set Intersection:* Summer 2016
Worked with Dr. Rasheed to implement a secure hamming distance protocol as a comparator for a Private Set Intersection (PSI) Algorithm
Summary of Research
- Topological Graph Theory:* Spring 2016
Worked with Dr. Lambert to find new upper and lower bounds For the crossing number of the Paley graph on 13 vertices
- The N-Queens Problem Mod 2* Summer 2014 - Spring 2015
Worked with Dr. Brown to find classes of permutations and algebraic properties of a variation of the traditional n-queens problem.
Exploring mod 2 n-queens games
- TEACHING EXPERIENCE**
- CS 8803/4803 Blockchain and Cryptocurrencies* Spring 2019, 2020
As an undergraduate, I worked with Dr. Kolesnikov to design a graduate level course which had never been taught before. I put a large emphasis on proofs and theory. Responsibilities also included lecturing, holding office hours, creating and grading problem sets, and student advisement.
- CS 4510 Automata and Complexity* Fall 2019, 2020
Worked under Dr. Zvi Galil and Dr. Santosh Vempala. Responsibilities include hold-

ing office hours, creating and grading problem sets, and student advisement.

Programming Competition Coordinator

Spring 2016

I organized meetings to help our programming team practice for events, such as the ACM ICPC and regional programming competitions.

**NOTABLE
COURSEWORK**

Georgia Tech

- ECE 8803 Introduction to Quantum Systems
- CS 8803 Secure Multiparty Computation
- CS 7210 Distributed Systems
- CS 6260 Applied Cryptography
- CS 4510 Automata and Complexity Theory
- CS 3510 Design and Analysis of Algorithms
- MATH 6121 Algebra I
- MATH 4032 Combinatorial Analysis
- MATH 4432 Algebraic Topology
- MATH 4803 Knot Theory
- MATH 4431 Introduction to Topology
- MATH 4150 Number Theory
- MATH 4107 Abstract Algebra I
- MATH 4317 Real Analysis I
- MATH 4320 Complex Analysis
- MATH 4441 Differential Geometry
- MATH 4280 Information Theory
- MATH 3406 Second Course in Linear Algebra
- MATH 3235 Probability Theory
- MATH 3012 Applied Combinatorics
- ISYE 3833 Linear Programming
- PHYS 4782 Quantum Information and Quantum Computing

Armstrong

- CS 5825 Artificial Intelligence
- CS 5700 Computer Security
- CS 3510 Theory of Computation
- CS 3330 Comparative Languages
- MATH 5160 Number Theory
- MATH 4900 Topological Graph Theory
- MATH 4340 Graph Theory
- MATH 4011 Real Analysis I
- MATH 4022 Real Analysis II
- MATH 3360 Modern Geometry
- MATH 3110 Abstract Algebra
- PHYS 3200 Math Methods for Physicists

**AWARDS &
HONORS**

- ChemEcar 1st Place Nationals Fall 2018
- ChemEcar 1st Place Southern Regionals Spring 2018
- Lancy C. Jen Shearhouse Scholarship Spring 2016
- GA Power Research Scholar Summer 2016
- Eagle Undergraduate Mathematics Conference 3rd Place Spring 2016
- ACM ICPC, Regionals, 4th place Spring 2016
- Video Game Design State of Georgia, 9th, 6th, 3rd place in 2012, 2013, 2014

**EXTRA-
CURRICULAR
ACTIVITIES**

I am a fluent programmer, with preferences for Python, C, and Rust. I also enjoy reading significantly older textbooks, and comparing the presentation of the same material to current books. I keep my writings at ladha.me/blog