Abrahim K. Ladha

CONTACT INFO

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EDUCATION

Georgia Institute of Technology Fall 2016 - Present
Mathematics Major with minors in Computer Science and Physics planned GPA

Armstrong State University Fall 2016 - Spring 2016
Transferred to Georgia Tech after two years GPA 3.78/4.0

H. V. Jenkins High School, Engineering Academy 2010 - 2014
Graduated AP Scholar with Distinction

EXPERIENCE

Armstrong Research Secure Multiparty Computation Summer 2016
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Programming Competition Coordinator Spring 2016
I organize and run practice sessions twice a week for Armstrong students to prepare for competitions such as the ACM International Collegiate Programming Contest and other small regional competitions.

Armstrong Research Topological Graph Theory Spring 2016
Worked under Dr. Lambert on several open problems in topological graph theory. We spent several weeks developing bounds for the crossing number of the Paley graph on 13 vertices.

Student Worker Summer 2015 - Spring 2016
I oversaw and helped maintain equipment and computers in Armstrong's Computer Science labs, including 3D printers, robotics, and some haptics equipment. I was also responsible for helping to organize and plan future events in the Computer Science Department.

Armstrong Research The N-Queens Summer 2014 - Present
Worked under Dr. Brown on the N-Queens Problem as a combinatorics researcher as part of the STEP Summer program. The research continued for the 2014-2015 year allowing me to write a paper, and attend several conferences and events to present my work.

Georgia Tech CEISMIC Instructor Spring 2013 - Summer 2015

Worked as an Instructor for the CEISMIC program at the Georgia Tech Savannah Campus. My duties were to teach basic paradigms in programming to K-5 Students during the Summer, and Girl Scout Troops during the school year. The tools used for instruction were Scratch and Construct 2.

PRESENTATIONS

- *State Space Graphs and the N-Queens Problem*
  - 95th MAA Southeastern Section Meeting (future, abstract submitted)
  - Supported by the Armstrong Math Club
  - March 26th 2015
- *How to make a Video Game! ACM Workshop for Students*
  - Conducted Student ACM Lecture Series Number 4
  - Supported by the ACM Student Chapter
  - February 26th 2016
- *State Space Graphs and the N-Queens Problem*
  - Eagle Undergraduate Mathematics Conference (Georgia Southern University)
  - Supported by the Armstrong Math Club
  - February 13th 2015
- *DuckDuckHack - So you want to write a search engine? ACM Workshop for Students*
  - Conducted Student ACM Lecture Series Number 1
  - Supported by DuckDuckGo and ACM Student Chapter
  - September 22nd 2015
- *A Comparision of Game Engines (Poster)*
  - TechFest 2015
  - Supported by the Computer Science department at Armstrong
  - April 17th 2015
- *Exploring A Derivation of the The N-Queens Problem.*
  - Armstrong Student Scholarship Symposium
  - Sponsored by Armstrong Undergraduate Research
  - April 17th 2015
- *Calculating and Optimization of Every Possibility of a Derivation of the N-Queens Problem.*
  - Kennesaw Undergraduate Research Conference
  - Sponsored by Armstrong Undergraduate Research
  - October 11th 2014
- *The N-Queens Problem.*
  - End of STEP Program
  - Sponsored by NSF-STEP 0856593
  - July 25th 2014

PREPRINTS

Hypothetical Problems concerning the Theory of Relativity on Cryptographic Currency Implementations - Bitcoin has demonstrated there are many security improvements applicable to normal currency. As the human race expands and we colonize other planets, we have to consider how we are going to extend integral parts of of society, and that includes our currency system. Information transferring does not scale well with very large distances, entirely due to physical limitations. For example, there is a maximum speed that any information can travel, and it cannot be faster than the speed of light. In this paper we take these physical limitations into account to give treatment to the following question. Can a single crypto-currency be used across the entire universe? Trivially many currencies can be used with exchange rates but we will try to avoid this as our solution. The idea of this paper was inspired by a paper titled The Theory of Interstellar Trade by Paul Krugman, a Nobel Economist. `http://arxiv.org/abs/1604.04265`

Exploring mod-2 n-queens games (submitted for publication)
We introduce a two player game on an $n \times n$ chessboard where queens are placed by alternating turns on a chessboard square whose availability is determined by the number of queens already on the board which can attack that square modulo two. The game is explored along with some variations and its complexity.
`http://arxiv.org/abs/1510.02875`

Convergence Zine
"September 2014: GLITCH" (pages 78, 15-16, 31-32). `http://issuu.com/convergencezine/docs/september2014`

AWARDS

- GA Power Research Scholar 2016
- Jesse Shearhouse Scholarship Spring 2016
- Eagle Undergraduate Mathematics Conference 3rd Place, 2016
- ACM ICPC 4th Place, College of Charleston location, Division II, 2015
- Dean's List Summer 2015
- Dean's List Spring 2015
- Dean's List Fall 2014
- Video Game Design 3rd Place, State level, 2014
- Video Game Design 6th Place, State level, 2013
- Video Game Design 9th Place, State level, 2012

HOBBIES

- Decentralized cryptographic currency systems and their computing needs
- Designing Algorithms to corrupt data structures of image and 3D file formats for artistic purposes `http://ladha.me/art`
- I enjoy solving puzzle cubes of varying sizes and shapes

- Mathematical topics I enjoy include Graph Theory, Mathematical Physics, Formal Logic, Abstract Computer Science, and Discrete Models of Quantum Mechanics.