

Ammar Ratnani

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github.com/ammrat13

Education

Georgia Institute of Technology, Atlanta, GA

Aug. 2019 - May 2023

- Bachelor of Science, Computer Science
- *Concentrations:* Systems & Architecture and Theory
- GPA: 4.0 / 4.0

Skills

Proficient: Java, Linux

Intermediate: C, Python, Git, HTML, CSS, Bootstrap, JavaScript, jQuery

Beginner: NumPy, OpenCV, PyBullet, Node.js, Linux-Apache-MySQL-PHP, LaTeX, Haskell

Coursework: Data Structures, Computer Architecture, Linear Algebra

Activities

Freelance Tutoring | Introduction to Information Security

Jan. 2020 - Present

- Instructed a student in this graduate-level computer security course covering common vulnerabilities and their mitigation
- Moved from low- to high-level exploits, going from buffer overflows in C to cryptography in Python to web-based exploitation in JavaScript and PHP

Institute of Electrical and Electronics Engineers | Pathfinding Team Member

Jan. 2020 - Present

- Implemented movement strategies for Georgia Tech's submission to SoutheastCon 2020, allowing the robot to complete the maximum number of objectives
- Studied algorithms like A* and RRT to plan efficient paths between objectives, and analyzed the possible setups in Python to determine the optimal route

Institute of Electrical and Electronics Engineers | Simulation Team Member

Aug. 2019 - Dec. 2019

- Worked on a subteam to develop software to test the mechanics, logic, and overall design of Georgia Tech's submission to SoutheastCon 2020
- Integrated custom electronics code in Python with PyBullet to ensure correctness when simulating rigid- and soft-body interactions

University Interscholastic League (UIL) Academics | Competitive Programmer

Sept. 2015 - Apr. 2019

- Nominated to compete on my school's UIL Computer Science team and advanced to the State level, placing third overall
- Gained proficiency implementing data structures and algorithms in Java

Projects

CS4Chain

Nov. 2018 - Mar. 2019

- Specified a blockchain based on Elliptic Curve Cryptography in LaTeX and began implementing it in Python
- Examined Elliptic Curves over finite fields and methods to hash into Elliptic Curves

Cards Against World History

Jan. 2018 - Apr. 2018

- Created and hosted a web-based interface for this card game for use in my teacher's AP World History class
- Backed it by a homemade Java server at first, then migrated to Node.js

Honors and Awards

Perfect Score on the AP Computer Science A Exam

May 2017

- One of only 112 students to receive this honor