Matthew Gregoire

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EDUCATION

UNC CHAPEL HILL

M.S. in Computer Science
Expected Dec 2022
B.S. in Computer Science
B.S. in Mathematics
May 2021
Cum. GPA: 3.98 / 4.0
Dean's List (All semesters)

NORTH CAROLINA SCHOOL OF SCIENCE AND MATH

May 2017 | Durham, NC
Cum. GPA: 5.54 / 4.0

LINKS

GitHub: MatthewGregoire42
LinkedIn: MatthewGregoire

COURSEWORK

GRADUATE

Logical Foundations
Cryptography
Computer Security
Privacy Enhancing Technologies

UNDERGRADUATE

Software Engineering
Quantum Computing
Algorithms
Operating Systems
CS Education Research

SKILLS

PROGRAMMING

Languages:
Python • Java • TypeScript
JavaScript • C • C++ • Verilog
MATLAB
Tools:
LaTeX • Bash • Jupyter • Git
SQL • MongoDB • ReactJS
Firebase • Kubernetes • Coq
numpy • matplotlib • qiskit

OTHER

Proficient at unicycling.
Play Chess and Go casually.
Can solve a Rubik's cube in under fifteen seconds.

EXPERIENCE

GRADUATE TECHNICAL INTERN | Cisco

May 2022 - August 2022
Worked on a software development team in an industry setting to transition a legacy system to a new platform.

- Implemented, tested, and documented changes to the codebase
- Documented a legacy API interface
- Saw agile software engineering from an industry perspective

PHYSICS SIMULATIONS WEBSITE | UNC Physics Department

January 2021 - August 2021
Worked in an agile development team to design a full-stack web application for professors to design and release assignments.

- Integrated code from the PhET simulation library
- Designed frontend interface in React
- Wrote careful documentation to allow future improvements

LEARNING ASSISTANT | UNC CS Department

August 2018 – May 2021
Assisted students in three undergraduate courses: intro programming, discrete structures, and computer organization.

- Worked to design the syllabus and electronics labs for Computer Organization
- Wrote and graded questions for quizzes and final exams
- Helped students understand concepts and assignments in office hours

RESEARCH AND PERSONAL PROJECTS

HARDWARE SECURITY AND INFORMATION FLOW

Fall 2021 - Present
Working with researchers at UNC, UC San Diego, and Intel to use information flow tracking to mine for vulnerabilities in hardware designs. Our aim is to efficiently extract information flow properties from symbolic execution of hardware.

SYMBOLIC EXECUTION IN COQ

January 2021 - Present
With PhD student Kaki Ryan, working towards specifying formal proofs in Coq of three properties of symbolic execution laid out in the seminal paper (King 77). Current project status available on GitHub.

8-BIT COMPUTER

Summer 2019
Built a fully programmable 8-bit computer using integrated circuits, wires, and breadboards, and designed a corresponding assembly language. Based on tutorials by Ben Eater. Full project description on GitHub.

RECOGNITIONS

2020 Completion of Qiskit Global Summer School in Quantum Computing
2019 Best Use of BlockStack API, PackHacks Hackathon
2017 NC State Champion, David Ricardo Economics Challenge
2017 Bowman-Brockman Scholar, NCSSM
2015 First Place, FIRST Robotics North Carolina Regional