Mia Kelly

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Education

University of Michigan — *Ann Arbor, MI*

M.S. in Computer Science — *2024*

- GPA: 4.0/4.0

Rensselaer Polytechnic Institute — *Troy, NY*

B.S. in Computer Science: *Summa Cum Laude* — *2022*

- GPA: 4.0/4.0
- RPI Founder's Award of Excellence (1% of students)
- RPI 4.0 Award (1% of students)

Middlesex School — *Concord, MA*

High School Diploma — *2018*

- Graduated with High Credit

Skills

Programming	C/C++, C#, Java, Python, Linux, Unity3D, Unreal Engine 4, OpenGL, Coq, Dafny
Coursework	Distributed Systems and Algorithms, Advanced Computer Graphics, Linear Algebra, Probability Theory, Multi-variable Calculus, Game Development, Game Engine Architecture, Artificial Intelligence, Advanced Programming Languages, Advanced Compilers
Maker Skills	Woodshop tools, CNC, Arduino Programming

Experience

University of Michigan — *Ann Arbor, MI*

Ph.D. Student and Researcher — *Sep. 2022 - Dec. 2024*

- Researcher under Dr. Manos Kapritsos on the Ironpatch project, a component of the DARPA Assured Micropatching Program.
- Investigated applications of formal verification to patches of mission critical code.
- Developed model of patch verification within Coq and proved theorems about scaling local reasoning to global reasoning in the context of patches.

Amazon Web Services: Amazon Games Publishing Services — *San Francisco, CA*

Software Development Engineering Intern — *May. 2021 - Aug. 2021*

- Developed and owned project to integrate QR codes into user experience flow, working with UX and Project Management.
- Worked on needed bug fixes and feature improvements related to AGPS Persona services.

Western Digital — *Longmont, CO*

Firmware Engineering Intern — *Sep. 2020 - Dec. 2020*

- Helped design and implement firmware for hard drives, specifically related to formatting.
- Deployed C++ code onto an embedded environment.
- Worked in a fast paced Scale Agile Framework (SAFe) including training in Agile.

Rensselaer Polytechnic Institute — *Troy, NY*

Teaching Assistant — *Jan. 2019 - Jan. 2022*

- Worked as an TA for classes including Data Structures, Principles of Software, and Introduction to Artificial Intelligence.
- Designed and graded exams and homeworks, as well as run office hours and labs.
- Worked one-on-one with students reinforcing new concepts, providing feedback, and helping to debug code.
- Designed a short course to bridge RPI's Computer Science 1 and Data Structures courses to help students prepare. Designed lessons and questions, including creating autograding configurations for the course.

RPI Chapter of Upsilon Pi Epsilon, Computer Science Honors Society — *Troy, NY*

Vice President, President — *May 2019 - May 2022*

- Served as Vice President in 2020-2021 academic year and President in 2021-2022 academic year.
- Oversaw individual committees as well as maintaining the day to day operations of the organization, including during the COVID-19 pandemic and the transition to and from online learning.
- Private tutor for several beginner and intermediate computer science courses.
- Organized and ran review sessions of up to 200 students for beginner courses.

Undergraduate Research

Crowdsourcing Perceptions of Gerrymandering
Troy, NY

Research Project Under Supervision of Professor Lirong Xia *Jan. 2021 - Sep. 2022*

- Researched the problem of gerrymandering as a graph problem under imperfect voter information.
- Work published as *Gerrymandering under Uncertain Preferences* as a student abstract at AAAI 2021 Conference including a poster presentation.
- Afterwards, investigated how to analyze and collect data on perceptions of gerrymandering.
- Designed Amazon Mechanical Turk survey and analyzed results using machine learning models.
- Work published as *Crowdsourcing Perceptions of Gerrymandering* as a paper at HCOMP 2022.
- Both papers available at `https://www.miakelly.com/`

Blockchain Biomedical Data Sharing
Troy, NY

Undergraduate Researcher *Jan. 2021 - May 2021*

- Worked with a research team in RPI's IDEA center developing a biomedical research data sharing system built with semantic web technologies on the Ethereum blockchain using smart contracts.
- Designed and implemented an ontology to represent the biomedical data lifecycle, including types of data sharing agreements.
- Researched intersection of blockchain technologies and ontologies and built on existing work when designing the new system.

HEALS Project
Troy, NY

Undergraduate Researcher *May 2020 - Aug. 2020*

- Worked with the HEALS project, a collaboration between IBM and RPI to use artificial intelligence and semantic web technologies to aid in determining treatment for patients with diabetes.
- Helped design and implement a UI interface integraed with RDF graphs for physicians' use in exploring treatment options.
- Helped design and verify unit tests for an ontology autonomic deduction tool within whyis, a graph creation and reasoner tool.

Submitty
Troy, NY

Developer and Researcher *Oct. 2019 - May 2022*

- Submitty is RPI's open source grading platform and programming autograding service used by most computer science classes.
- Designed online office hours queue system utilized by most of the computer science classes on campus.
- Designed online polling system to aid in transition to hybrid classes for the fall of 2020.
- Co-authored a poster being presented at SIGCSE 2022 on correlating student plagiarism with assignment "late day" usage.

Interests

- Curling
- Crossword puzzles
- Board games
- Squash
- ROM Hacking