

# Benjamin Kelly

UNDERGRADUATE COMPUTER SCIENCE STUDENT

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## Education

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### Rensselaer Polytechnic Institute

B.S. in Computer Science

- GPA: 4.0/4.0

Troy, NY

Aug. 2018 - May 2022 (Projected)

## Skills

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**Programming** C/C++, C#, Java, Python, Linux, Unity3D, Unreal Engine 4, OpenGL

**Coursework** Distributed Systems and Algorithms, Advanced Computer Graphics, Economics and Computation, Linear Algebra, Introduction to Artificial Intelligence, Programming Languages

## Experience

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### Amazon Web Services

San Francisco, CA

Software Development Engineering Intern

May. 2021 - Aug. 2021

- Worked as intern within Amazon Games Publishing Services on features related to account linking and in-game social features.
- Developed and owned project to integrate QR codes into user experience flow, working with UX and Project Management to design requirements.
- 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 - Present

- Worked as an undergraduate TA for six semesters 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.

## Research

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### Gerrymandering Under Uncertain Preference Profiles

Troy, NY

Research Project Under Supervision of Professor Lirong Xia

Jan. 2021 - Present

- Researched the problem of gerrymandering as a graph problem under imperfect voter information.
- Worked on problem formalization, algorithm design, theoretical complexity, and experimental results.
- Work published as *Gerrymandering under Uncertain Preferences* as a student abstract at AAAI 2022 Conference including poster presentation.
- Paper available at <https://www.benjaminkelly.org/papers/gerrymandering.pdf>

### 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 integrated 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 - Present

- 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.
- 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.

## Leadership and Awards

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

Vice President, President

May. 2019 - Present

- 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.

**Rensselaer Polytechnic Institute Founder's Award of Excellence***Troy, NY*

Recipient

November 2021

- The Founders Award of Excellence honors students who embody the qualities of creativity, discovery, and leadership, and the values of pride and responsibility.
- About 1% of graduate or undergraduate students are honored each year.

**Rensselaer Polytechnic Institute 4.0 Award***Troy, NY*

Recipient

November 2021

- Awarded to students who maintain a 4.0 GPA after 90 credit hours of work.
- Twenty students (1% of seniors) were honored with this award this year.