

# Ryan Newkirk

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## Education

**Northwestern University**

**McCormick School of Engineering**

**Computer Science Major**

**Data Science & Engineering Minor**

– Undergrad 2020-2024

**Whitney M Young Magnet High School**

## Notable Coursework

Machine Learning

Data Structures & Algorithms

Mathematical Foundations of Comp Sci

Design & Analysis of Algorithms

Computer Systems

Human Computer Interaction

Multivariable Differential & Integral Calculus

Engineering Analysis

Electrical Engineering

Microeconomics & Macroeconomics

## What Excites Me

Hackathons, Civic Tech, Edutainment,

Video Production, Chess, Piano,

Virtual Reality, Robotics

## Skills

Python, C, C++, Java, Svelte, HTML/CSS/JS, R, Julia, Haskell, Racket (PLAI), Web Scraping, MySQL Workbench, LaTeX, GitHub, Web/Mobile App Development, Onshape CAD, Visual Studio Code, Cypress

## Awards

- 2022 Northwestern IEEE Project Showcase Best Project Winner
- 2022 Wildhacks Grand Prize & Crowd Favorite Project Winner
- FIRST Robotics: Chicago Regional Championship 4-Time Winner  
2019 World Competition Team
- 2018 - 2020 Business Professionals of America: 2-Time National Competition Qualifier. *JAVA Programming*.  
Chicago Citywide Competition, 1<sup>st</sup> Place  
State Competition, 3<sup>rd</sup> Place
- 2018 Congress of Future Science and Technology Leaders Award of Excellence
- 2019 American Invitational Mathematics Examination (AIME 12) Qualifier

## Work Experience

**Square Software Engineering Intern**

Summer 2022-Present

Full Time Internship at Square as part of the Developer Experience team. Developed a new front-end feature for Square's Web Payments SDK website allowing users to write and preview code in-browser. Wrote an Engineering Design Doc, Developed with a spike, Svelte (HTML/CSS/JS), Cypress, VSCode, GitHub Source Control. Prototyped an ecommerce site using Square Payment API and JS servers. Prototyped a cross-platform promotion sharing tool for Cash App/Square Seller Dashboard.

**Argonne Energy Systems Division Software Dev Intern**

Summer 2021-Present

Full Time Internship at Argonne National Laboratory Energy Systems Division.

Independently developed Python scripts and MySQL database to retrieve and store US power utility companies' real-time customer outage data, representing 70% of US population. Developed geo-mapping functions, gained experience in data analysis for smart outage forecasting.

## Extracurriculars & Projects

**IEEE Northwestern Student Chapter**

2021-Present

Built a program that detects brain tumors via an image segmentation model using Python ML Framework Keras, as part of a team project to create an assistive tool for radiologists.

**Northwestern Wildhacks Hackathon**

April 2022

Created a website that uses OpenAI GPT3 to recommend gift ideas based on a short personal description. Used Multithreading APIs and Web Scraping to gather dynamically update our website with data from product pages. Winning project out of 100 participants

**Google Kick Start & Code Jam**

2019-Present

Competed in an international programming competition, solving a set of algorithmic problems in a fixed amount of time. Qualified for Round 1, scored in the top 4% worldwide.

**Northwestern Design Thinking & Communication**

2020-2021

Designed a smart learning device for non-profit org Kids in Danger to facilitate remote learning for kids during the COVID-19 pandemic. Designed assistive stress sensors and display to measure dynamic weight for rehab of partial weight-bearing status patients and clinicians at Shirley Ryan AbilityLab/Amita Health.

**Bridge-It-Back Design-a-thon**

April 2021

Designed a branched dry well water drainage system to prevent flooding at James Park for the Evanston Ecology Center.

**Chi Hack Night**

2018-Present

Attend weekly meetups to discuss civic issues and analyze city data. Co-developed the Chicago 311 Virtual Assistant and worked on the "Books to Women in Prison" project.

**Google Computer Science Summer Institute**

2020

Learned how to build web applications using the p5 Library, APIs, Node.js, and ExpressJS.

**Whitney Young Mobile App Inventor Club**

2017-2020

President and Founder of this club. Organized weekly meets, led design of mobile apps. Created a website to host information for 150 school clubs.

**FIRST Robotics – FIRST Tech Challenge**

2017-2020

Programmed robots using Android Studio. Applied mechanical engineering, electrical engineering, and circuitry skills to build robots that compete in performing tasks.