# Ryan Newkirk

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## Education

**Northwestern University**
**McCormick School of Engineering**
**Computer Science**
**Whitney M Young Magnet High School** - Graduated June 2020

## Coursework

| Notable | Favorites |
| --- | --- |
| AP Computer Science | AP CS |
| AP English & Comp | Statistics |
| AP Physics 1,2,C | Number Theory |
| Math through AP Calc BC | Mechatronics |
| AP Economics | Machine Learning |

## What Excites Me

Coding (Java, JavaScript, Python, R, Julia, Haskell, GitHub Pages, Arduino, Web/Mobile App development, Data Science), Hackathons, Google Foobar, Edutainment Video Production, Jumping Photos, Robotics, Museums, Smart City

## Awards

2016 Broadcom National Science Competition Broadcom MASTERS nominee

Chicago's Youth Math symposium QED 2015, 2016 Highly Distinguished Mathematics Research Award.

Business Professionals of America 2019 JAVA Programming
Chicago Citywide Competition, 1st Place
State Competition, 3rd Place
National Competition Qualifier

2018 Congress of Future Science and Technology Leaders Award of Excellence

FIRST Robotics
4-time winner of Chicago Regional Championships.
2019 World Competition Team.

2019 American Invitational Mathematics Examination (AIME 12) Qualifier

## Interests



## Activities & Work

**Google Kick Start & Code Jam** — 2019 – 2020
Reached Round 1A-C in Code Jam 2020, best placement 1556th place
Participated in 5 rounds of Kick Start 2020, best placement 1205th place

**Google Computer Science Summer Institute** — Summer 2020
Participated in a computer science program in which I learned JavaScript and how to build web applications using the p5 Library, APIs, Node.js, and ExpressJS.

**Northwestern Robotics** — Fall 2020
**Northwestern .dev** — Fall 2020
Recently joined. College clubs are remote this year, most clubs are due to start activities later in the year.

**Whitney Young Mobile App Inventor Club**
**President and Founder** — 2017 – 2020
Started this club as a freshman to gather students with or without coding experience to learn how to create mobile apps and build computational thinking skills. Work includes organizing weekly club meets, leading design, discussing code, and teaching new member basic app development skills. Built S-Mart prototype, a student resource sharing app to help students get easy access to school supplies, textbooks, and information. Built WY School Club App, and developed a website (https://x-ry.github.io/wyclub/) to host information for over 130 school clubs.

**FIRST Robotics**
**Team Member** 2015 – Present Participated in FIRST Lego League teams "Seismic Squad" in 2014 and "Lego Fire" in 2015. Participated in FIRST Tech Challenge team "Robophins" from 2017-2019. Programmed robots using Android Studio, acquired skills in mechanical engineering, electrical engineering, and circuitry. Wrote and maintained an Engineering Notebook. Participated in team fundraising activities. 4-time winner of Chicago Regional Championships. World Competition Qualifier.

**Whitney Young Math Team** — Spring 2016 – 2020
4 years in a competitive math league. City of Chicago Math League, 1st place team for 4 years. North Suburban Mathematics League of Illinois, 3rd place team for 3 years. Illinois Council of Teachers of Mathematics, Top 3 team in state competitions for 3 years. 2019 AIME (AMC 12) Qualifier. Created math videos, 4-time CCML video contest winner and Overall 2019 video contest team winner.

**Foreign Student Teacher in Chengdu, China** — Summer 2017
Attended the Fenghua Academy's Youth Leadership Development Program. As a volunteer, I planned classes and organized cultural exchange activities for a class of 35 younger Chinese students at the San Yuan Foreign Language School.

**UChicago Young Scholars Program** — Summer 2015, 2016, 2018
Attended University of Chicago Math department summer program for three years, studying Number Theory, Geometry and broadening my understanding of math. Designed the YSP 2018 Summer Camp T-shirt based on the Markov model.

**Northwestern Center for Talent Development Program: Mechatronics** Aug 2018
Learned electromechanical design and prototyping. Built circuits and robots from scratch, using low-level electrical components, laser cutting and 3D printing mechanical parts built an autonomous vehicle: a smart shopping cart. Wrote code to read the sensors and control the actuators.

**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.

**National Honor Society / National Junior Honor Society** — 2016-Present
Took on service roles to support our school and community. Volunteered in several Chicago Marathons, at the Great Chicago Food Depository, and several school/community events. Completed over 180 hours of volunteer service over 4 years in high school.

**Business Professionals of America** — 2018-2020
Focused on building information technology skills and applying Java knowledge to business-related problems. Earned 1st in Chicago and 3rd in State JAVA Programming competitions. Represented Illinois at the 2019 National Leadership conference in the JAVA Programming competition.

**Congress of Future Science and Technology Leader** — Summer 2018
Represented Illinois as a delegate at the 2018 Congress of Future Science and Technology conference.

**Michigan Institute for Data Science Data Science Summer Camp** Summer 2019
Exploring Data Science through Nature, Art, Athletics, and Autonomous Vehicles. Learned to teach computer to distinguish data sets using many tools; JuliaBox, Jupyter Notebooks, Oculus VR Headset

**UIUC ILLINI Summer Academies** — Summer 2018
Explored Electrical and Computer Engineering through hands-on, minds-on activities.

**UIUC: Worldwide Youth in Science and Engineering Program** — July 2019
Studied Mechanical Engineering, through hands-on, minds-on activities.