

# Ryan Newkirk

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## Education

Northwestern University

McCormick School of Engineering

Computer Science

– Undergrad 2020-2024

Whitney M Young Magnet High

School

– Graduated June 2020

## Notable Coursework

Data Structures & Algorithms

Fundamentals of Computer Programming

Engineering Analysis

Multivariable Differential & Integral Calculus

Design Thinking and Communication

Microeconomics & Macroeconomics

## What Excites Me

Coding, Hackathons, Edutainment Video

Production, Badminton, Chess, Piano, Virtual

Reality, Robotics, Museums, Smart City

## Skills

C, C++, Java, JavaScript, Python, R, Julia,

Haskell, Racket (DSSL2), Web Scraping,

MySQL Workbench, GitHub Pages, Arduino,

Web/Mobile App Development, Data Science,

Onshape CAD

## Awards

FIRST Robotics

Chicago Regional Championship 4-Time

Winner

2019 World Competition Team

Business Professionals of America 2018-2020

2-Time National Competition Qualifier

JAVA Programming

Chicago Citywide Competition, 1<sup>st</sup> Place

State Competition, 3<sup>rd</sup> Place

Computer Programming Concepts

State Competition Winner

2018 Congress of Future Science and

Technology Leaders Award of Excellence

2019 American Invitational Mathematics

Examination (AIME 12) Qualifier

## Work Experience

Argonne Research Aide-Technical

2021-Present

Summer Internship at Argonne National Laboratory Energy Systems Division. Wrote Python scripts and MySQL database/tables to retrieve and store US power utility companies' real-time customer outage data.

## Extracurriculars & Projects

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.

Business Professionals of America

2018-2020

Building information technology skills and applying Java knowledge to business related problems. Represented Illinois at the 2019 National Leadership Conference in the JAVA Programming competition, and NLC qualifier in Computer Programming Concepts in 2020.

Michigan Institute for Data Science Summer Camp

2019

Exploring Data Science through Nature, Art, Athletics, and Autonomous Vehicles. Learned to teach computers how to distinguish data sets using JuliaBox, and Jupyter Notebooks.

UIUC Worldwide Youth in Science and Engineering Program

2019

Utilized CAD, Arduino programming, and prototyping skills to build a Stereolithographic 3D Printer, and explored other Mechanics concepts through hands-on, minds-on activities.

UChicago Young Scholars Program

2015-2018

Attended University of Chicago Math Department summer program for three years, studying Number Theory and Geometry.

Northwestern Center for Talent Development Program: Mechatronics

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.

Congress of Future Science and Technology Leaders

2018

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

Whitney Young Math Team

2016-2020

Studied advanced mathematics concepts and competed in many contests.

2019 AIME (AMC 12) Qualifier. 1<sup>st</sup>-3<sup>rd</sup> place top team in math leagues at the city and state level; City of Chicago Math League, North Suburban Mathematics League of Illinois, Illinois Council of Teachers of Mathematics, etc. Created math videos, 4-time CCML video contest winner and overall 1<sup>st</sup> place in the CCML 2019 video contest.