# CATHERINE GUO

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## EDUCATION

**Northwestern University**                                                                                                    **Evanston, Illinois**
*Bachelor of Science in* **Computer Science**                                            September 2021 - Anticipated December 2024

- Relevant Coursework: Fundamentals of Computer Programming I, 1.5, and II, Data Structures and Algorithms, Multivariable Differential Calculus for Engineering, Honors Engineering Analysis I, II, and II, Generative Methods, Human Computer Interaction, Design Thinking and Communication I and II, Statistics
- **Technical Skills:** Proficient in Python, C, MATLAB, Racket, Excel, and R Studio. Intermediate in Java, HTML, CSS, PowerPoint

## RELEVANT EXPERIENCES

**IDEAS Lab**                                                                                                                         **Evanston, Illinois**
*Intern at the Design Automation of Intelligent Systems Lab*                                                Feb 2022 – Current

- Conducted and presented two rounds of literature surveys analyzing over 24 papers about healthcare, transportation access, transportation algorithms, telemedicine, telehealth, and vehicle routing for dynamic demand
- Worked on managing and interpreting transportation data, specifically Teradata.

**Driven to Reach Excellence and Academic Achievement for Males (DREAAM) House**            **Urbana, Illinois**
*Leader and Event Organizer*                                                                                            August 2019 – May 2021

- Designed a program in collaboration with DREAAM House, a non-profit organization working with African American and Latino boys (K-8), increasing test scores by an average of 17%
- Taught over 100 students and organized events rooted in science, math, environmentalism, and engineering

**EDD Academy**                                                                                                                   **Champaign, Illinois**
*Writer and Interview Leader*                                                                                          August 2018 – May 2020

- Aided in launching a non-profit that familiarized students with Advance Placement classes, calculus, and coding
- Produced videos and articles about STEM, essay writing, and the college process which garnered over 10,000 views

**Digital Youth Divas**                                                                                                         **Evanston, Illinois**
*Administrative Assistant*                                                                                            January 2022 – June 2022

- Maintained the company website, organizing data using excel and communicating with company heads
- Coordinated events at the community center, facilitating coding education and mentorship for middle school girls

## PROGRAMMING EXPERIENCES

**Cleveland Clinic**                                                                                                              **Cleveland, Ohio**
*Intern at the Lal Lab*                                                                                           July 2021 – September 2021

- Created a neurodevelopmental disorder portal using R studio which analyzed over 500,000 points of data to detect copy number variants (CNV) in each chromosome, and the mutations correlating with genomic diseases
- Developed and integrated filtering algorithms and displays specifically for data concerning epilepsy 25
- Utilized gene databases such as Decipher, DGV, etc. while analyzing scientific papers about copy number variants

**Illinois Geometry Lab (IGL) Summer Research Program**                                                       **Urbana, Illinois**
*Researcher/Scholar*                                                                                                 March 2019– August 2019

- Conducted a research project analyzing the relationship between mathematical biology and natural selection, and how the Moran Process and Q-learning algorithm affects the Prisoner's Dilemma
- Coded tournaments in Python that used the Moran process to develop the best strategies to win the Prisoner's Dilemma along with reinforcement learning algorithms and used LaTeX to create payoff matrices

**NCSA Software Carpentry Workshop**                                                                               **Urbana, Illinois**
*Workshop and Team Participant*                                                                           August 2018 – February 2019

- Worked with Pandas to organize data frames and produced code to visualize data in Python
- Created a filtering algorithm in Python that analyzed data sets about different classes and the topics they covered

## ADDITIONAL INFORMATION

**Activities:** Engineers without Borders (EWB), Theme Park Engineering, Develop and Innovate for Social Change (DISC), Society of Women Engineers (SWE), Women in Computing (WiC)
**Interests:** Tennis, Painting, Cooking Asian Cuisine, Camping, Ice Skating, Gymnastics, *HIMYM, Swiftie, Gilmore Girls*