

# Caden Howell

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## Education

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**Northwestern University**, Evanston, IL

Sep. 2019 - Present

**Bachelor of Science in Computer Science**, anticipated 2023

**Master of Science in Computer Science**, anticipated 2023 via BS/MS program

Cumulative GPA: 3.86/4.00 | Major GPA 4.00/4.00

## Relevant Coursework

Machine Learning | AI Programming in LISP | Statistical Language Modeling | Creative Applications in ML

## Work

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**Softhard.io**, Hartford, CT

Jun. 2021 – Sep. 2021

Data Analytics Intern

- Cleaned global database responsible for outputs of 209 sensors with MySQL and Python scripting to modernize sensor event recall and analysis, curtailing multi-hour debugging sessions from workflow
- Updated graphical interfaces contingent on weekly client feedback and organized with team to promote unified layout across six interfaces
- Created interactive, graphical interfaces with DAX, PowerBI, and Power Query to inform client on usage trends of infrastructure with 1.7 thousand daily users leading to validation of peak occupancy hours
- Investigated approaches for over-the-air firmware updates to existing IoT infrastructure and implemented low profile server hosting to meet administrative goals of efficiency and simplicity in design
- Spearheaded hardware and software testing of ESP32 microcontroller using C and Arduino framework to validate functionality and stability for use in IoT data collection

**Ravinia Festival**, Highland Park, IL

Aug. 2019 – Sep. 2019

- Coordinated sale/distribution of furniture for concerts with upwards of 10,000 attendees

## Relevant Experience

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### Music for the Moment

- Organized biweekly meetings with dev team to communicate progress and plan subsequent design steps
- Pioneered sentiment to vector mapping and integrated auxiliary APIs, including IBM Watson, into Python codebase to catalyze low computing cost analysis of emotional content in music and speech

### Language Modeling Research

- Coauthored pseudo-novel research paper exploring parameter modification in attention mechanism of GPT-2 like decoder model
- Trained 30 unique models on WikiText-2 with PyTorch based transformer library to perform language modeling and established benchmarking to determine ideal model parameters

### Java Projects

- Constructed an orbital physics simulator and two GUI-enabled games using graphics libraries (JavaFX, Java Swing), build environments (Maven), multithreading, object-oriented practices, and Java 9 modular design

### Formula SAE, Electronics Team

- Headed project to discover, code, and test budget friendly display interface and collaborated with chassis team to ensure proper device sizing and installation
- Championed use of I2C communication protocol to decrease I/O usage by 67%, reduce project costs by 25%, and allow for future scalability of design with advanced LCD displays

## Achievements

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Deerfield High School Computer Science Achievement Award

2019

Illinois Council of Teachers of Mathematics Student Achievement Award

2019

## Skills

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**Languages:** Java | Python | C++ | DAX | LISP | MATLAB

**Other:** Object-Oriented Programming | Data Structures and Algorithms | JetBrains IDEs | PowerBI