# HAYDEN HOUSEN

Machine Learning • NLP • Computer Vision • Web Development

A logical and detail-oriented freshman at Cornell University studying computer science. Previously, an intern on the Machine Learning Team at Ada Support. Researched automatic classroom lecture summarization using AI in high school.


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## EDUCATION

**BACHELORS OF COMPUTER SCIENCE**
Aug 2021 - May 2025 (Expected)

**CORNELL UNIVERSITY**
Learning about computer science. Exploring various clubs, classes, projects, and reserach opportunities. Aiming to specialize in machine learning and related topics.

## EXPERIENCE

**MACHINE LEARNING CO-OP**
May 2021 - Sept 2021

**ADA SUPPORT**
Increased valuable customer interactions by leading a project to enable Ada chatbots to better understand non-English languages. Collaboratively developed & trained multilingual machine learning models using state-of-the-art architectures. Experimented with novel techniques and cultivated skills in PyTorch, transformers, and pandas.

## PROJECTS

**lecture2notes**
Sept 2019 - Aug 2021

**Summarizing Lecture Videos by Classifying Slides and Analyzing Text**
Conducted scientific research & created a state-of-the-art system to summarize classroom lectures using machine learning, computer vision, and NLP. Code & docs available at github.com/HHousen.

**Will I Have A Snow Day.com**
Dec 2019 - Sept 2020

**Predicting Snow Days with Machine Learning**
Created an AI-powered automatic snow day predictor website that improves itself overtime using user feedback. Learned about machine learning models and data processing techniques.

**TransformerSum**
Mar 2020 - Aug 2020

**Open-Source Neural Summarization Library**
Furthered research in neural-network text summarization models, specifically in less researched areas such as long document summarization. 4.45x smaller than state-of-the-art but 94% as accurate. Code and thorough documentation at github.com/HHousen.

**PicoCTF 2019 & 2021**
Sept 2019 - Jun 2020 & March 2021

**Cybersecurity Challenges**
Placed 609 out of 15,817 in 2019 and later completed all 121 challenges. During the 2021 competition, placed 25 out of 2280 (top 1.1%) among US Middle/High School students. Learned ethical hacking skills including binary exploitation, forensics, and reverse engineering.

**Fast.ai**
Sept 2018 - Jul 2019

**Deep Learning Fundamentals**
Developed an understanding for deep learning concepts by building state-of-the-art models & writing machine learning functions from scratch. Read deep learning books & took online courses at Stanford.

**FreeCodeCamp & CTY**
Jun 2018 - May 2019

**Web Development & Java**
Completed about 400 hours of front-end coursework. Built 10 front-end projects. Completed 347 coding challenges. Completed Java courses through Johns Hopkins Center for Talented Youth.

## SKILLS

Understands full-stack web development and enjoys creating state-of-the-art machine learning models.

**LANGUAGES:** Python, JavaScript, Java, C/C++
**LIBRARIES:** PyTorch, transformers, OpenCV, sklearn, pandas, numpy, spacy, matplotlib
**OS:** Linux, Windows, MacOS
**OTHER:** Git, AWS, Anaconda, Electron, Heroku
**BACKEND:** Flask, MySQL, Docker, Apache, PHP, SQL
**FRONTEND:** HTML, CSS, Bootstrap, jQuery, Materialize.css

## HONORS

**Regeneron STS Top 300 Scholar - 2021**
**1st Computational Sciences at Eastern JSHS - 2021**
**2nd Computational/Physical Sciences at Upstate New York JSHS - 2021**
**National Cyber Scholar with Honors - 2021**
**Somers Science Fair 3rd Place in Computer Science/Mathematics - 2019**
**Principal's Honor Role x16 - 2021**
Rensselaer Medal - 2020
Award Winning Graphic Designs (T-Shirts, brochures, bookmarks) - 2018
AP Scholar with Distinction Award - 2020
Pawling Varsity P (x2) - 2018/2019
RIT Computing Medal - 2020
Math National Honor Society Treasurer - 2021
Science & Spanish National Honor Society Member

## ACTIVITIES

**CROSS COUNTRY**
2018-2021
Practiced daily and accomplished personal running goals, motivated teammates to reach their potential, enhanced team spirit through communication and attitude.

**MATH TEAM**
2017-2021
Studied advanced mathematics and competed against other schools.

**BIBLE CLUB**
2017-2019
Facilitated charitable service activities, conversations, discussions, activities, and debates.