

# Rishi Malhotra

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## EDUCATION

**Cornell University**, College of Engineering, Ithaca, NY

Sep 2019 - May 2023

Bachelor of Science, Computer Science. GPA: 3.934. Dean's List (FA 19, FA 20, SP 21)

- **Relevant Courses:** Intro Machine Learning, Intro Computer Vision, Basic Probability, Linear Algebra, Natural Language Processing, Discrete Math, OOP and Data Structures, Functional Programming, Computer Architecture

### Coursera Deep Learning Specialization

June 2020

- Gained a profound knowledge of Deep Learning and its industry applications (Computer Vision, Natural Language Processing, etc.)

## EXPERIENCE

**Microsoft**, Redmond, WA, *Data Science Intern*

June 2021 – Present

- Using ML and NLP to automate Microsoft Azure's ticket-mitigation process, which consisted of identifying and automating steps in unclear documents, projected to save Microsoft engineers 450 hours a month.
- Developing a data pipeline and a machine learning pipeline, currently with 93% accuracy, consisting of mention detection, classification and action sequencing models.

**Cornell University**, Ithaca, NY, *NLP Researcher*

Feb 2021 – May 2021

- Contributed to the development of the Generative Transformers (GTT) model, a template filling information extraction task, alongside Professor Claire Cardie and PhD Student Xinya Du.
- Adapted the model and tuned its hyperparameters to fit the SciREX dataset.

**Plugout**, Englewood, NJ, *Software Development & Data Science Intern*

July 2020 – August 2020

- Programmed scalable software for a real-time (7 fps) crowd counting analytics platform.
- Optimized existing industry solutions from 91% to 96% mAP by implementing Big Data-trained machine learning models based on Facebook's Detectron2 software system.

**Cornell University**, Ithaca, NY, *Machine Learning Researcher*

June 2020 – July 2020

- Programmed a FFNN-based solution and a LSTM-based solution that predicts the emotion of a tweet with 55% and 77% accuracy respectively to detect xenophobic sentiments in tweets.
- Produced a report featuring nuanced qualitative and quantitative analysis that compared the two approaches and identified shortcomings and potential improvements to each approach.

## PROJECTS

**Covid-19 Hospitalizations**

May 2021

- Applied vanilla neural networks and AdaBoost + Decision Trees to predict future Covid-19 Hospitalization rates with 91809 mean squared error, ranking 8<sup>th</sup> on the Kaggle competition leaderboard.
- Engineered a time series weighted average feature and tuned the neural network's hyperparameters for optimized performance.

**Closed-Domain Question Answering**

January 2021

- Interpreted state-of-the-art NLP papers "Attention is All You Need" and "Reading Wikipedia to Answer Open-Domain Questions" (DrQA) to develop a transformer-based solution with a 46.04 Exact Match score and a DrQA-inspired solution with a 45.01 Exact Match score on the SQuAD 2.0 challenge.

**Image Steganalysis Classifier for Kaggle**

May 2020 – July 2020

- Implemented a deep learning classifier that detects secret hidden data within digital images as part of a Kaggle competition.
- Achieved an 80% weighted AUC score by applying transfer learning to EfficientNet with Python PyTorch.

**Book Schmo**

December 2018 – March 2019

- Built an E-commerce website with seller and buyer account functionalities for a client.
- Devised a design specification, programmed a full stack website and constructed a relational database using HTML, CSS, JavaScript, PHP, and MySQL.

## ACHIEVEMENTS

**Cornell University Hackathon 2020 Finalist**

February 2020

- Led a team of five to develop software that automated the production of rocket part design and rendered 99% efficient rocket part CAD drawings in Fusion360.

## SKILLS

**Programming Languages:** Python, SQL, Java, OCaml, MySQL, HTML, CSS, PHP, Unix/Linux, Git

**Libraries & Frameworks:** PyTorch, NumPy, Pandas, Scikit-learn, Matplotlib, Unittest