

# Abhay Singh

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## contact

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## education

**Cornell University**, Ithaca, NY

B.S. in Computer Science, GPA: 4.19/4.00

Aug 2018 – May 2022 (expected)

## coursework

(\* = in progress)

(† = teaching assistant)

CS 6670: Computer Vision (Graduate)\*, CS 4780: Machine Learning\*, CS 4820: Analysis of Algorithms†, CS 3110: Functional Programming\*, CS 3410: Systems Programming, CS 2800: Discrete Structures, CS 2110: Data Structures, MATH 2940: Linear Algebra, BTRY 3080: Probability & Inference

## languages & technologies

Python, Java, C/C++, JavaScript, HTML/CSS, SQL, Bash, L<sup>A</sup>T<sub>E</sub>X

NumPy, PyTorch, Scikit-Learn, OpenCV, Pandas, Keras/TensorFlow, Jupyter, Git, Docker, Flask

## experience

**Cornell University Vision and Learning**, Ithaca, NY

*Undergraduate Researcher*

Sept 2019 – present

- Conducting computer vision and machine learning research under guidance of Professors Serge Belongie, Bharath Hariharan, and Kavita Bala

**Morgan Stanley**, New York, NY

*Technology Summer Analyst*

June 2019 – Aug 2019

- Architected and implemented end-to-end data pipeline to process and analyze over 800,000,000 entries of financial data daily with highly optimized, parallelizable Python scripts
- Reduced mainframe consumption by 90%, from 5000 to 500 CPU seconds, saving tens of millions of dollars in annual costs
- Created and deployed firm-wide DevOps web tool to analyze large text-based datasets

**Cornell Unmanned Air Systems**, Ithaca, NY

*Computer Vision Engineer*

Oct 2018 – present

- Researched, implemented, and utilized modern computer vision techniques for real-time detection, localization, and classification of multi-class target images captured from autonomous aircraft
- Designed end-to-end classifiers from scratch in addition to transfer learning with a limited dataset

**Damco Solutions Inc.**, New Delhi, India

*Software Engineer Intern*

June 2017

- Deployed Android application PhotoShelf (photoshelf.in) in development team of four
- Sped up workflow by 1 week by designing wireframes that allowed for concurrent implementation of back-end logic and front-end design
- Consulted higher management and collaborated with the CEO & Managing Director to streamline the app's UX design and flow by studying user preferences

**Data Science for India**

*Instructor & Curriculum Developer*

July 2017 – Oct 2017

- Developed introductory data science course for over 400 students of 11 Jupyter notebooks to manipulate, visualize, and analyze useful data from large datasets using NumPy, pandas, and matplotlib

## projects

**Virtual Stock Market** 🐙

- Deployed RESTful web app in Python using Flask that simulates stock market trading with live prices and paper money, storing transactions with SQL database

**Spellchecker** 🐙

- Implemented spellchecker in C that determines misspellings against a changeable dictionary using a self-implemented hash table

**Fashion-MNIST Classifier** 🐙

- Designed end-to-end classifier from scratch with a simple convolutional neural network architecture to classify images from the Fashion-MNIST dataset

**Tweet Sentiment Analyzer** 🐙

- Scores user's tweets as positive, neutral, or negative using Twitter API and visualizes data

**JPEG Recovery** 🐙

- Recovers JPEG files from formatted memory cards (.raw files) in C