Abhay Singh

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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, OCaml, Java, C/C++, JavaScript, HTML/CSS, SQL, Bash, LaTeX
NumPy, OpenCV, Scikit-Learn, PyTorch, 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