Spandan Das

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Education

Carnegie Mellon University **2024 (Expected)**
B.S. Computer Science
Relevant Coursework: (PhD) Intro to Deep Learning [Python], Intro to ML [Python], Introduction to Computer Systems [C] Probability and Computing, Statistics and Computing, Principles of Functional Programming [SML]

Thomas Jefferson High School for Science and Technology
GPA: 4.6/4.0, SAT: 1590/1600
Relevant Coursework: Artificial Intelligence [Python], Computer Vision [C++], Machine Learning [Python], Parallel Computing [C], Probability Theory, Concrete Math, Multivariable Calculus, Linear Algebra

Experience

CMU AirLab **May 2022 – Present**
Computer Vision Research Intern
- Developing an online camera calibration algorithm for a multi-view stereo setup on drones used to determine real-time depth maps
- Technologies used: **PyTorch**, **OpenCV**, **Docker**

NASA Goddard Space Flight Center **June - August 2021; June – August 2020**
Machine Learning Intern
- Trained machine learning models (**TensorFlow**, **Scikit-learn**, **XGBoost**) on data from NASA's Global Precipitation Measurement mission's Core Observatory Satellite to classify precipitation type
- Utilized NASA Center for Climate Simulation (NCCS) supercomputing cluster to work with large data (2016 and 2017 annual satellite data) and optimize training of bagging models using multithreading
- Presented research to GSFC Climate and Radiation Lab and at international conference (AGU Fall Meeting 2020)
- `https://github.com/SD325/NASA_Internship_2020`

University of Virginia **June – August 2019**
Student Researcher
- Used web-scraping (**Beautiful Soup 4**) and machine learning (**Scikit-learn**) in **Python** to predict likelihood of premium subscription purchase for TV streaming platform

Projects

Tetris AI **March 2021**
- Modeled game of tetris from scratch in **Python**
- Used a genetic algorithm to place pieces in optimal location at each step
- Designed custom fitness function to compare boards of each generation

Skin Cancer Detector **April 2020**
- Classification of various skin lesions using **Keras** to train convolutional neural networks
- Achieved >92% accuracy using transfer learning
- `https://github.com/SD325/ISIC_Skin_Lesion_Detection`

Publications

Das, S.; Wang, Y.; Gong, J.; Ding, L.; Munchak, S.J.; Wang, C.; Wu, D.L.; Liao, L.; Olson, W.S.; Barahona, D.O. A Comprehensive Machine Learning Study to Classify Precipitation Type over Land from Global Precipitation Measurement Microwave Imager (GPM-GMI) Measurements. Remote Sens. 2022, 14, 3631. `https://doi.org/10.3390/rs14153631`

Achievements

- 2021 USA Math Olympiad – Top 2% (Top 550 out of 30,000+ contestants; 232.5 USAMO Index)
- USA Computing Olympiad (USACO) – Top 600 in nation (Gold Division)
- 2022 Goldman Sachs Quantathon – Honorable Mention

Skills/Extracurriculars

Technical Skills: Java, Python, C, C++, LaTeX, HTML, Linux
Extracurriculars: Tennis, Hindustani Classical Music, CMU Sahara (Bollywood Fusion Dance), Basketball, Card/Board Games