Spandan Das

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spandand • SD325

Education

Carnegie Mellon University   **2024 (Expected)**

B.S. Computer Science

Relevant Coursework: (PhD) Intro to Deep Learning [Python], Intro to ML [Python], Probability and Computing, Principles of Functional Programming [SML], Principles of Imperative Computation [C]

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
- Libraries used: **PyTorch**, **OpenCV**, **Kalibr**

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

Achievements

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

Publications

Das, S., Wang, Y., Gong, J., Ding, L., Munchak, S.J., Wang, C., Wu, D., Liao, L., Olson, W.S., Barahona, D.O. "An Ice Microphysics-Based Machine Learning Approach to Classify Precipitation Type over Land from Global Precipitation Measurement Microwave Imager (GPM-GMI) Measurements."

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