Sanchit Sinha

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About Me:

PhD student in Computer Science with expertise in developing, implementing and deploying ML models. Extensive research experience in deep language models, image/signal processing and interpretation/explainability of ML models.

CORE SKILLS

Frameworks: PyTorch, Tensorflow, Keras; **Deployment:** Docker, Kubernetes, Kubeflow; **Languages:** Python, C++, Java ; **Skills:** -Building highly scalable machine learning models, -Expert in usage of CNNs/Transformers for object tracking, segmentation, depth estimation, facial recognition, textual downstream tasks ; - Scikit-Learn, OpenMP, R

EDUCATION

University of Virginia — Charlottesville, Virgnia
Doctor of Philosophy (Ph.D.) in Computer Science — 05/2021 - 05/2025 (expected)

University of Virginia — Charlottesville, Virgnia
Master of Science in Computer Science — GPA: 4.0/4.0 — 08/2019 - 05/2021
Elective Courses: Advanced Deep Learning, Machine Learning, Data Mining, NLP, Manifold Analysis, Graph Mining

IIIT-Delhi — New Delhi, India
Bachelor of Technology in Computer Science with Honors — GPA: 8.28/10 — 08/2015 - 05/2019
Elective Courses: Advanced ML, Artificial Intelligence, Parallel Programming, Advanced Algos, Collab Filtering, Biometrics

WORK EXPERIENCE

Unity Technologies (Unity 3D) — Seattle, WA, USA
ML-Computer Vision Intern, AI@Unity — 05/2020 – 08/2020
- Implemented a real time video object tracking segmentation model with benchmark performance on public leaderboards
- Containerized deployment on GCP/AWS with ETL functionality, robust fine-tuning and scalable pipelining (Kubeflow)
- Designed multi-domain (including synthetic data) training algorithms (domain randomization) for better generalizability
- Saved expensive man-hours in data annotation and curating diverse datasets for autonomous driving and perception

Western Digital — Bangalore, India
SWE Intern, Client Storage Solutions - Validation — 05/2018 – 08/2018
- Developed 4 novel automation solutions saving several hundred man-hours in SSD onboarding procedures
- My script to automate firmware installation on hundreds of SSDs in parallel was Awarded "Think Big (Automation Initiatives)" Award and reduced the time for installations on a big batch of SSDs from more than 24 hours to 2 hours
- My automation effort for automatic test curation for SSD validation using ML techniques was awarded the most "Out-of-Box Idea Award" by VP of Engineering, Western Digital Global in an intra-company Validation Summit

FFmpeg - Google Summer of Code, 2017 — Remote
Student Developer — 05/2017 – 08/2017
- Nominated in a highly selective student open source developer program hosted by Google (code on my Github profile)
- Designed/implemented audio processing decoder for Ambisonic AR-sound files to custom speaker array configuration

PROJECT WORK

Evaluating explainability of Deep NNs *(Master's Thesis)* — 01/2020 – 05/2021
- Disrupt performances of DNN explainability methods like Integrated Gradients and LIME on deep NLP models.[1]

Automated Face Detection and Recognition in Primates *(Bachelor's Thesis)* — 01/2018 – 05/2019
- Designing an end to end biometric system to detect and recognize primate faces in the wild performing data cleaning, detection in the wild, face normalization, face alignment and facial recognition using a novel triplet loss algorithm[2,3]

Automated Video Summarization — 01/2019 – 05/2019
- Developed a global attention and LSTM based video summarization algorithm improving performance by 5% on 2 public video summarization benchmark datasets SumME and TVSum[4]

Unsupervised Image to Image Translation using GANs — 01/2019 – 05/2019
- Introduced semi-supervision in completely unsupervised models like CycleGAN to raise performance to supervised approaches like pix2pix and successfully obtained super-linear increase in performance (code on Github)

Publications

- [1] Perturbing Inputs for Fragile Interpretations in Deep NLP — Under Review, 2021
- [2] Triplet Transform Learning for primate face recognition — IEEE ICIP, 2019
- [3]Exploring Bias in primate face detection and recognition — ECCV-W, 2018
- [4]Video Summarization using Global Attention with Memory Networks and LSTM — IEEE BigMM, 2019