Abhishek Sinha

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INTERESTS

Computer Vision, Active Learning, Self-supervised Learning, Anomaly detection, Generative Models

EDUCATION

STANFORD UNIVERSITY
MS in Computer Science
Sept. 2019 - Present | Stanford, CA
Expected June 2021
Cum. GPA: 4.13/4.0

IIT KHARAGPUR
BTech in E & ECE
2013-2017 | Kharagpur, India
Minor in Computer Science
Cum. GPA: 9.63 / 10.0
Minor Cum. GPA: 9.8 / 10.0

COURSEWORK

GRADUATE
CS 221, CS 231N, CS 236, CS 234, CS 224N, CS 271

UNDERGRADUATE
Deep Learning
Data Structures and Algorithms

ACHIEVEMENTS

YOUNG ENGINEER AWARD
Won the Outstanding Young Engineers Award at Adobe Inc.

ADOBE MAX
My work on image synthesis was showcased on stage at Adobe MAX, 2019.

WINNER OF AI HACKATHON
Winner of the Microsoft AI Hackathon competition held at IIT Kharagpur.

SKILLS

Python • C • C++
TensorFlow • PyTorch • Caffe
OpenCV • Scikit-learn • Numpy

POSITIONS

COURSE ASSISTANT, CS 330

EXPERIENCE

WAYMO LLC | Perception Research and Development Intern
June 2020 – September 2020 | Mountain View, USA
- Implemented various active learning algorithms for 3D detection of vehicles and pedestrian over Waymo Open Dataset.
- Achieved significant improvement compared to a random baseline.

STANFORD UNIV. | Research Assistant Under Stefano Ermon
January 2020 – Present | Stanford, USA
- Working in the field of anomaly detection using better generative models and representation learning models.

ADOBE | Software Development Engineer-2
June 2017 – August 2019 | Noida, India
- Worked on a deep learning based visual search product for apparels which accepts images, segments them and then recommends related desired products.

ADOBE | Intern
May 2016 – July 2016 | Noida, India
- Developed a system to accelerate training of neural networks which was published in ICLR 2017.

PUBLICATIONS

NEGATIVE DATA AUGMENTATION | ICLR, 2020
- Proposed a new training objective for GAN and contrastive learning approaches using negative data augmentation.
- Achieved significant improvement in conditional/unconditional image generation and representation learning over images and videos.

INTROSPECTION: ACCELERATING NEURAL NETWORK TRAINING BY LEARNING WEIGHT EVOLUTION | ICLR, 2017
- Developed an algorithm to speed up training of deep neural networks by predicting future weight values.
- Achieved 20% and 40% improvement in training time for CIFAR-10 and ImageNet datasets respectively.

CHARTING THE RIGHT MANIFOLD: MANIFOLD MIXUP FOR FEW-SHOT LEARNING | WACV 2020
- Used self-supervision techniques - rotation and exemplar, followed by manifold mixup for few-shot tasks.
- The proposed approach achieved the state-of-the-art accuracy on mini-ImageNet, CUB and CIFAR-FS datasets.

HARNESSING THE VULNERABILITY OF LATENT LAYERS IN ADVERSARIALLY TRAINED MODELS | IJCAI 2019
- Proposed a new adversarial training methodology to increase the robustness of neural networks against adversarial attacks.

ATTENTION BASED NATURAL LANGUAGE GROUNDING BY NAVIGATING VIRTUAL ENVIRONMENT | WACV 2019
- Made a 2D grid environment in which an agent was trained using A3C algorithm to performs tasks on the basis of natural language sentence.

POWERING ROBUST FASHION RETRIEVAL WITH INFORMATION RICH FEATURE EMBEDDINGS | Best Paper Award at CVPR Workshop, 2019
- Proposed a grid based training of siamese networks, allowing it to observe mutiplte positive and negative image instances simultaneously.