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 - 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

Reviewer for NeurIPS 2021, ICLR 2022
Course Assistant, CS 330

EXPERIENCE

WAYMO LLC | Software Engineer
June 2021 - Present | Mountain View, USA
- Developing an end-to-end framework for active learning.

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.

STANFORD UNIV. | Research Assistant Under Stefano Ermon
January 2020 – Present | Stanford, USA
- Worked towards improving generative models and representation learning models, and also using them for anomaly detection.

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.

SELECTED PUBLICATIONS

COMPARING DISTRIBUTIONS BY MEASURING DIFFERENCES THAT AFFECT DECISION MAKING | Best Paper Award at ICLR, 2022
- Proposed a way to measure the discrepancy between two probability distributions based on optimal decision loss.
- Our approach outperformed prior approaches for two-sample tests.

D2C: DIFFUSION-DENOISING MODELS FOR FEW-SHOT CONDITIONAL GENERATION | NeurIPS, 2021
- Improved the representation learning and generation abilities of VAE via contrastive loss and strong prior using diffusion models respectively.
- The model outperformed state-of-the art VAE and diffusion models for few-shot conditional image generation tasks.

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.

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.

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.