Abhishek Sinha

abhishek.sinha94@gmail.com | 650.709.5501 | a7b23.github.io | Google Scholar

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, NeurIPS 2022
Course Assistant, CS 330

EXPERIENCE

Waymo LLC | Senior Software Engineer
June 2021 - Present | Mountain View, USA
- Worked on improving the data efficiency of various Perception models.
- Currently working on fine-tuning foundational multi-modal models.

Waymo LLC | Perception Research and Development Intern
June 2020 – September 2020 | Mountain View, USA
- Implemented different active learning algorithms for 3D detection of vehicles and pedestrian over Waymo Open Dataset.

Stanford Univ. | Research Assistant Under Stefano Ermon
January 2020 – June 2021 | Stanford, USA
- Researched towards improving generative models and representation learning models by designing novel loss functions and model architectures.

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.

SELECTED PUBLICATIONS

Comparing Distributions by Measuring Differences that Affect Decision Making | Best Paper Award at ICLR, 2022 | Paper
- Proposed a new divergence metric using H-entropy computed from log-likelihood of generative models.
- Our approach outperformed the FID metric for evaluating image quality.

D2C: Diffusion-Denoising Models for Few-shot Conditional Generation | NeurIPS, 2021 | Paper | Project
- Improved the representation learning and generation abilities of VAE via contrastive loss and strong diffusion prior respectively.
- Our model was the first latent diffusion model and outperformed state-of-the-art diffusion models for few-shot conditional generation.

Negative Data Augmentation | ICLR, 2020 | Paper
- 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 | Paper
- Developed an algorithm to speed up training of deep neural networks.

Charting the Right Manifold: Manifold Mixup for Few-shot Learning | WACV 2020 | Paper
- Showed the importance of self-supervision techniques for few-shot tasks.

Harnessing the Vulnerability of Latent Layers in Adversarially Trained Models | IJCAI 2019| Paper
- Proposed a new adversarial training methodology to increase the robustness of neural networks against adversarial attacks.

Powering Robust Fashion Retrieval with Information Rich Feature Embeddings | Best Paper Award at CVPR Workshop, 2019 | Paper
- Proposed a grid based training of siamese networks, allowing it to observe mutiplte positive and negative image instances simultaneously.