

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, ICLR

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

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.
- Achieved 40% improvement in training time for ImageNet dataset.

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.

HARNESSING THE VULNERABILITY OF LATENT LAYERS IN ADVERSARIALY TRAINED MODELS | IJCAI 2019

- 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

- Proposed a grid based training of siamese networks, allowing it to observe multiple positive and negative image instances simultaneously.