

# Abhishek Sinha

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## INTERESTS

COMPUTER VISION, GENERATIVE MODELS, SELF-SUPERVISED LEARNING, ACTIVE LEARNING, ANOMALY DETECTION

## 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

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

## ACHIEVEMENTS

**Cheetah Award**  
Won the Cheetah Award for my work on latency and compute optimization at Waymo.

**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.

**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, 2022, ICLR 2022, 2023  
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 multiple positive and negative image instances simultaneously.