

Abhishek Sinha

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INTERESTS

MULTIMODAL MODELS,
GENERATIVE MODELS,
REPRESENTATION LEARNING,
FEW-SHOT LEARNING

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

- Google | SOFTWARE ENGINEER**
Feb 2024 - Present | Sunnyvale, USA
- Currently involved in the multi-modal post-training of Gemini, serving as a key contributor in achieving the top position on the LMSYS Vision leaderboard.
- Waymo LLC | SOFTWARE ENGINEER**
June 2021 - Feb 2024 | Mountain View, USA
- Led the fine-tuning of LVLMS for driving domain and achieved large data efficiency improvements for several Perception models.
- Stanford Univ. | RESEARCH ASSISTANT UNDER STEFANO ERMON**
January 2020 - June 2021 | Stanford, USA
- Developed the first latent diffusion model and worked on improving generative models and representation learning models by designing novel loss functions.
- Waymo LLC | PERCEPTION RESEARCH AND DEVELOPMENT INTERN**
June 2020 - September 2020 | Mountain View, USA
- Showed the efficacy of different active learning algorithms for 3D detection of vehicles and pedestrians over the Waymo Open Dataset.
- Adobe | SOFTWARE DEVELOPMENT ENGINEER-2**
June 2017 - August 2019 | Noida, India
- Developed a deep learning-based visual search product for apparel.

SELECTED PUBLICATIONS

Gemini 1.5: Unlocking multimodal understanding across millions of tokens of context | CORE CONTRIBUTOR | [PAPER](#)

- Worked on Multi-Modal Post-training of Gemini to better align model responses towards human preferences.

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.

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.

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.