

Siddhant Garg

MASTER'S IN COMPUTER SCIENCE · UNIVERSITY OF MASSACHUSETTS AMHERST

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Education

M.S. Computer Science	UMass Amherst	September, 2021 - May, 2023	4.0/4.0
B.S Maths and Computing	IIT Kanpur	September, 2015 - May, 2019	9.2/10.0

Work Experience

Research Scientist Intern	Adobe Research, San Jose, US	May, 2022 - August, 2022
Senior Software Engineer	Samsung R&D, Bengaluru, India	June, 2019 - August, 2021
Software Engineer Intern	Samsung R&D, Bengaluru, India	May, 2018 - July, 2018

Video Understanding using CLIP | Adobe Research

San Jose, U.S

RESEARCH SCIENTIST INTERN, MAY, 2022 - AUGUST, 2022

- Identified and reported bugs of **Sensei Framework**, used to maintain real-user dataset for better training of the ML models.
- Extracted CLIP features of real-user videos to analyze their content and curate a validation dataset with similar distribution.
- Worked with **MERLOT-Reserve 6M video dataset** to find the YouTube video that is "nearest" to the user video.

Self-Attention MobileNets for Computer Vision | Samsung R&D

Bengaluru, India

SENIOR ENGINEER, JUNE, 2019 - AUGUST, 2021

- Designed and implemented **Self-Attention Modules** with Inverted Bottlenecks to give a novel **Self-Attention MobileNet**.
- The Proposed model's **inference latency was improved by 50 milliseconds** on Mobile-GPU over MobileNet-V3 model.
- Self-Attention MobileNet, trained for Image Tilt Correction task, showed **10% accuracy improvement** over MobileNet-V3.
- Published** a research paper with state-of-the-art results in the **British Machine Vision Conference 2021**.
- Feature deployed on **Samsung Galaxy Flagship models** (Patent pending at USPTO).

Academic Projects

Self-Supervised Learning Using Perturbed Point Clouds | 3D Deep Learning

COURSE PROJECT - PROF. EVANGELOS KALOGERAKIS, COMPUTER SCIENCE, UMASS AMHERST

Spring, 2022

- Proposed novel self-supervised training objective to learn 3D point cloud representations.
- Implemented Point Cloud Transformer Encoder-Decoder with **VQ-VAE**.
- Improved ShapeNet classification accuracy by 1.05%** using the pre-trained representations.

Self-Labeling Refinement for Self-Supervised Learning | Computer Vision

COURSE PROJECT UNDER PROF. ERIC LEARNED-MILLER, COMPUTER SCIENCE, UMASS AMHERST

Fall, 2021

- Proposed novel loss functions for Self-Labeling Refinement in Bootstrap Your Own Latent Model (BYOL).
- Implemented and trained the model on unlabeled dataset using the self-supervised paradigms.
- Presented **accuracy improvements** of 1.9% on the labeled dataset with less number of training examples.

Other Projects

- Structured Pruning of Multi-Task Neural Networks**, Computer Vision, UMass Amherst
- Multi-Lingual Hate Speech Detection using Transformers**, Natural Language Processing, UMass Amherst
- Hyperparameter Tuning using Scalable Bayesian Optimization**, Computer Vision, IIT Kanpur
- Few-Shot Multi-Label Learning with Prototypical Networks**, Computer Vision, IIT Kanpur

Relevant Course Work

Reinforcement Learning(A)	Machine Learning(A)	Introduction to Neural Networks(A)
Probability & Statistics (A)	Information Retrieval(A)	Natural Language Processing(A)
Stochastic Processes (A)	Database Systems	Probabilistic Modelling and Inference(A)

Technical Skills

Programming Languages Python, C, C++, Java
Machine Learning Frameworks PyTorch, Tensorflow

Awards & Achievements

2020	Samsung Spot Award for excellent project work , Samsung Research Institute, Bengaluru	Bengaluru, India
2018	Certificate of Merit for Academic Excellence , B.S. in Mathematics, IIT Kanpur	
2016	IIT Kanpur Academic Mentor , Course: Introduction to C Programming Language	