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 better training of 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

- **Structure Pruning 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 Institure, 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