

Anshul Shah

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Education

Johns Hopkins University

Ph.D in Computer Science

2020–2023(Expected)

Advisor : Prof. Rama Chellappa

Transferred from UMD College Park

University of Maryland, College Park

M.S. in Computer Science

2018–2020

4.0/4.0

Advisor : Prof. Rama Chellappa

Indian Institute of Technology Madras, Chennai

B.Tech.(Honors) & M.Tech. in Electrical Engineering

2013–2018

9.39/10

Minor in Robotics

Advisor : Prof. A.N. Rajagopalan

Research Interests

Contrastive Learning, Self-Supervised learning, Action Recognition for Clinical Applications, Multi-Modal representation learning, Pose-based Action Recognition

Selected Achievements

- **Amazon Fellow (2022-23)** : Named Amazon Fellow as a part of JHU + Amazon initiative for Interactive AI.
- **Medicine + Engineering research retreat** : Presented poster on behavior recognition for early diagnosis of Autism Spectrum Disorder was presented at JHU Medicine + Engineering research retreat.
- **Highlighted reviewer ICLR'22** : Recognized as highlighted reviewer for ICLR'22.
- **Student Scholarship - AAAI'22** : Received Student Scholarship for AAAI-2022.
- **Department Rank 2 (2013-18)** : Ranked 2nd in Dual Degree (B.Tech+M.Tech) in Electrical Engineering at IIT Madras (Batch of 2018).
- **Department Rank 1 (2015-16)** : Awarded the Kolluri Memorial Prize for **best Academic record** in Electrical Engineering at IIT Madras in 3rd Year with a GPA of 9.75.
- **Semester Abroad** : Among 8 selected from IIT Madras for a semester exchange at Czech Technical University in Prague from Sep'16 to Jan'17

Publications

Max-Margin Contrastive Learning

Anshul Shah[†], Suvrit Sra, Rama Chellappa, Anoop Cherian[†]

AAAI 2022

Pose and Joint-Aware Action Recognition

Anshul Shah, Shlok Mishra, Ankan Bansal, Jun-Cheng Chen, Rama Chellappa, Abhinav Shrivastava

WACV 2022

STEPs: Self-Supervised Key Step Extraction from Unlabeled Procedural Videos

Anshul Shah, Benjamin Lundell, Harpreet Sawhney, Rama Chellappa

Under submission

HaLP: Hallucinating Latent Positives for Skeleton-based Self-Supervised Learning of Actions

Anshul Shah, Aniket Roy[†], Ketul Shah[†], Shlok Mishra, David Jacobs, Anoop Cherian, Rama Chellappa

Under submission

Few shot Learning with hard Mixup

Aniket Roy, **Anshul Shah**, Ketul Shah, Prithviraj Dhar, Anoop Cherian, Rama Chellappa

NeurIPS 2022

Object-Aware Cropping for Self-Supervised Learning

Shlok Mishra, **Anshul Shah**, Ankan Bansal, Abhyuday Jagannatha, Abhishek Sharma, David Jacobs, Dilip Krishnan

TMLR 2022

Bringing Alive Blurred Moments

Kuldeep Purohit, **Anshul Shah**, A N Rajagopalan

CVPR 2019 (Oral Presentation)

Multi-View Action Recognition using Contrastive Learning

Ketul Shah, **Anshul Shah**, Chun Pong Lau, Celso de Melo, Rama Chellappa
WACV 2023

Learning Visual Representations for Transfer Learning by Suppressing Texture

Shlok Mishra, **Anshul Shah**, Ankan Bansal, Abhinav Shrivastava, Abhishek Sharma, David Jacobs
BMVC 2022

DiffAlign: Few-shot learning using diffusion based synthesis and alignment

Aniket Roy, **Anshul Shah**[†], Ketul Shah[†], Anirban Roy, Rama Chellappa
Under submission

Learning Based Single Image Blur Detection and Segmentation

Kuldeep Purohit, **Anshul Shah**, A N Rajagopalan
ICIP 2018

Attention Driven Vehicle Re-identification and Unsupervised Anomaly Detection for Traffic Understanding

Pirazh Khorramshahi, Neehar Peri, Amit Kumar, **Anshul Shah** and Rama Chellappa
NVIDIA AI City Challenge Workshop at CVPR 2019

[†] Equal Contribution

Patents

Hybrid virtual and physical jewelry shopping experience

Mohit Jain, Pratyush Kumar, Megha Nawhal, Ashok Pon Kumar, **Anshul Shah**, Gyanendra Sharma, Amith Singhee
Patent US10810647B2

Research Internships

Microsoft Research : Mixed Reality

Mentors : Dr. Harpreet Sawhney, Dr. Ben Lundell

Jun'22-Aug'22

Using multiple modalities for Face Tracking

Microsoft Research : Mixed Reality

Mentors : Dr. Harpreet Sawhney, Dr. Bugra Tekin, Dr. Amol Ambardekar

Jun'21-Aug'21

Multimodal Complex Video Understanding

Mitsubishi Electric Research Laboratories (MERL), MA

Mentor : Dr. Anoop Cherian

Jun'20-Aug'20

Contrastive Learning & Video Representation Learning

IBM Research Lab, India

Mentors : Prof. Pratyush Kumar, Ashok Ponkumar, Dr. Amith Singhee

May'16-Jul'16

Virtual Cognitive Mirror

Matrix ComSec R&D, India

May'15-Jul'15

Surveillance Camera Video Enhancement

Teaching and Mentoring Experience

Course Assistant

Machine Perception

Aug'22-Dec'22

Johns Hopkins University

Teaching Assistant

Image Signal Processing & Physics I

Jun'17-May'18

IIT Madras

Project Mentor

Centre for Innovation

Aug'15-Jan'16

IIT Madras

Reviewing

Reviewed for ICLR'[23,22], AAAI'[23,21,20], NeurIPS'[22,21,20], WACV'[23,22], ICML'[22,21], CVPR'23, ECCV'20

Relevant Coursework

Computer Vision and Machine Learning: Image Understanding, Advanced Techniques in Visual Learning and Recognition, Image Signal Processing, Deep Learning, 3D Computer Vision, Machine Learning for Computer Vision, Computational Linguistics, Algorithms in Machine Learning : Guarantees and Analyses

Mathematics: Advanced Numerical Optimization, Convex Optimization, Probability, Statistics and Stochastic Processes, Linear Algebra and Numerical Analysis, Functions of several variables