Anshul Shah

anshulbshah.github.io

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Education

Johns Hopkins University   **2020–2023(Expected)**
Ph.D in Computer Science
Advisor : Prof. Rama Chellappa
Transferred from UMD College Park

University of Maryland, College Park   **2018–2020**
M.S. in Computer Science   *4.0/4.0*
Advisor : Prof. Rama Chellappa

Indian Institute of Technology Madras, Chennai   **2013–2018**
B.Tech.(Honors) & M.Tech. in Electrical Engineering   *9.39/10*
Minor in Robotics
Advisor : Prof. A.N. Rajagopalan

Research Interests

Multimodal Video Understanding, Pose-based Action Recognition, Self-Supervised Learning, Contrastive Learning, Video Understanding for Clinical Applications

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

Development of an Automated Movement-Based Measure for Digital Autism Phenotyping Prior to Age 2
R. Reetzke, A. Shah, R. Roemmich, B. Hicks, S. Ray, J. Stenum, J. Morrel, R. Chellappa, R. Landa
Abstract 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   **Jun'22-Aug'22**
Mentors : Dr. Harpreet Sawhney, Dr. Ben Lundell   *Multimodal Face Avatar Tracking*

Microsoft Research : Mixed Reality   **Jun'21-Aug'21**
Mentors : Dr. Harpreet Sawhney, Dr. Bugra Tekin, Dr. Amol Ambardekar   *Multimodal Complex Video Understanding*

Mitsubishi Electric Research Laboratories (MERL), MA   **Jun'20-Aug'20**
Mentor : Dr. Anoop Cherian   *Contrastive Learning & Video Representation Learning*

IBM Research Lab, India   **May'16-Jul'16**
Mentors : Prof. Pratyush Kumar, Ashok Ponkumar, Dr. Amith Singhee   *Virtual Cognitive Mirror*

Matrix ComSec R&D, India   **May'15-Jul'15**
Surveillance Camera Video Enhancement

Teaching and Mentoring Experience

Course Assistant   **Aug'22-Dec'22**
Machine Perception   *Johns Hopkins University*

Teaching Assistant   **Jun'17-May'18**
Image Signal Processing & Physics I   *IIT Madras*

Project Mentor   **Aug'15-Jan'16**
Centre for Innovation   *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 Lingusitics, 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