Anshul Shah

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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
Semester Abroad : Czech Technical University in Prague (Fall'17)

Research Interests

Multimodal/Multisensor 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.
- **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.

Publications

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
CVPR 2023

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

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
INSAR-International Society for Autism Research 2023 (Poster)

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, CoLLA 2023

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

Cap2Aug: Caption guided Image to Image data Augmentation
*Aniket Roy, **Anshul Shah**[†], Ketul Shah[†], Anirban Roy, Rama Chellappa*
Under submission

DiffNat: Fine-tuning text-to-image diffusion model with natural image statistics
*Aniket Roy, Maitreya Suin, **Anshul Shah**, Prithviraj Dhar, Ketul Shah, Rama Chellappa*
Under submission

Ground-to-Air Generalization for Action Recognition via Synthesis
*Ketul Shah, **Anshul Shah**, Arun Reddy, Aniket Roy, Arushi Sinha, Celso de Melo, 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
Multimodal three-dimensional face modeling and tracking for generating expressive avatars
H. Sawhney, B. Lundell, A. Shah, C. Hewitt, T. Baltrusaitis, M. Radojevic, K. Grujcic, I. Stojiljkovic, P. McIlroy, J. Jadidian, C. Cristian
Patent Filed

Research Internships

Apple Machine Learning Research   **Mar'23-Sep'23**
Mentors : Raviteja Vemulapalli, Gierad Laput, Anurag Ranjan, Karren Yang   *Multimodal Learning*

Microsoft Research : Mixed Reality   **Jun'22-Aug'22**
Mentors : Harpreet Sawhney, Benjamin Lundell   *Multimodal Face Avatar Tracking*

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

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

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

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

Reviewing

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

Relevant Coursework

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, Advanced Numerical Optimization, Convex Optimization, Probability, Statistics and Stochastic Processes