

Anshul Shah

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Education

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| Johns Hopkins University <i>Ph.D in Computer Science</i> Advisor : Prof. Rama Chellappa Transferred from UMD College Park | 2020–Present |
| University of Maryland, College Park <i>M.S. in Computer Science</i> Advisor : Prof. Rama Chellappa | 2018–2020 4.0/4.0 |
| Indian Institute of Technology Madras, Chennai <i>B.Tech.(Honors) & M.Tech. in Electrical Engineering</i> Minor in Robotics Advisor : Prof. A.N. Rajagopalan | 2013–2018 9.39/10 |

Research Interests

Contrastive Learning, Self-Supervised learning, Multi-Modal representations, Pose-based Action Recognition

Publications and Patents

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

Few shot Learning with hard Mixup

Aniket Roy, **Anshul Shah**, Ketul Shah, Prithviraj Dhar, Anoop Cherian, Rama Chellappa
NeurIPS 2022

Bringing Alive Blurred Moments

Kuldeep Purohit, **Anshul Shah**, A N Rajagopalan
CVPR 2019 (Oral Presentation)

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

Learning Based Single Image Blur Detection and Segmentation

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

Hybrid virtual and physical jewelry shopping experience

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

Preprints and Ongoing Works

Multi-Cue processing of Unlabeled Complex Task Videos

Anshul Shah, Ben Lundell, Harpreet Sawhney, Rama Chellappa
Under submission

Learning Visual Representations for Transfer Learning by Suppressing Texture

Shlok Mishra, **Anshul Shah**, Ankan Bansal, Abhinav Shrivastava, Abhishek Sharma, David Jacobs
Under Submission, arXiv

Object-Aware Cropping for Self-Supervised Learning

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

[†] Equal Contribution

Research Internships

Microsoft Research : Mixed Reality

Mentors : Dr. Harpreet Sawhney, Dr. Ben Lundell

Jun'22-Present

Multimodal Fusion

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

Selected Achievements

- **Student Scholarship - AAAI'22** : Received Student Scholarship for AAAI-2022.
- **Highlighted reviewer ICLR'22** : Recognized as highlighted reviewer for ICLR'22.
- **Rank 2** : Ranked 2nd in Dual Degree (B.Tech+M.Tech) in Electrical Engineering at IIT Madras (Batch of 2018).
- **Department Topper 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.
- **IIT - Joint Entrance Examination Advanced 2013** : Ranked 1074 among more than 150,000 candidates
- **Inspire Scholarship 2013** : Conferred by Dept. of Science & Technology, Government of India to top 1% candidates based on Class XII exam
- **National Cyber Olympiad** : Secured national rank 12 (Class 12) in National Cyber Olympiad 2013 and ranked 1st in state
- **Semester Abroad** : Among 8 selected from IIT Madras for a semester exchange at Czech Technical University in Prague from Sep'16 to Jan'17
- **Robotics Competitions** : Part of a team that won in many technical events in the IIT Madras like, 1st in Autonomous Robotics (TechSoc'15), 1st in RoboCup (Wavez'15), 2nd in Manual Robotics (Shaastra'14)

Other Relevant Projects

Pose-based action recognition for clinical applications

Mentor : Prof. Rachel Reetzke, Prof. Ryan Roemmich & Prof. Rama Chellappa

Apr'22 - Present

Johns Hopkins University

Reducing communication rounds in federated learning

Mentor : Prof. Soudeh Ghorbani

Sep'20 - Dec'20

Johns Hopkins University

Generating universal triggers for NLP systems

Mentor : Prof. Hal Daume III

Aug'19 - Dec'19

University of Maryland

Interpreting neural networks using Canonical Correlation Analysis

Mentor : Prof. Furong Huang

Feb'19 - Aug'19

University of Maryland

Single Image to 3D

Mentor : Prof. Abhinav Shrivastava

Aug'18-Jan'19

University of Maryland

Kinect Meets DJ

Centre for Innovation

Aug'14-Jan'15

IIT Madras

Teaching and Mentoring Experience

Teaching Assistant

Image Signal Processing & Physics I

Jun'17-May'18

IIT Madras

Project Mentor

Centre for Innovation

Aug'15-Jan'16

IIT Madras

Voluntary Service

Reviewed for NeurIPS'22, ICLR'22, WACV'22, NeurIPS'21, ICML'21, AAAI'21, NeurIPS'20, ECCV'20, AAAI'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