

Anshul Shah

anshulbshah.github.io

✉ ashah95@jhu.edu

Education

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

Current Research

Contrastive Learning, Self-Supervised learning, Multi-Modal representations, Improving video representations, 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

Learning Visual Representations for Transfer Learning by Suppressing Texture

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

Object-Aware Cropping for Self-Supervised Learning

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

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

[†] Equal Contribution

Research Internships

Microsoft Research : Mixed Reality

Mentors : Dr. Harpreet Sawhney, Dr. Bugra Tekin, Dr. Amol Ambardekar
Worked on Multimodal complex video understanding without labels.

Jun'21-Aug'21
Multimodal Video Understanding

Mitsubishi Electric Research Laboratories (MERL), MA

Mentor : Dr. Anoop Cherian

Worked on a novel contrastive learning objective useful for self-supervised learning.

Jun'20-Aug'20
Video Representation Learning

IBM Research Lab, India

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

May'16-Jul'16

Virtual Cognitive Mirror

Developed algorithms to detect feature points in a face image and overlay images to improvise jewelry buying experience.

Matrix ComSec R&D, India

May'15-Jul'15

Surveillance Camera Video Enhancement

Studied various techniques and implemented algorithms on the TI DM38x media processor for IP camera video enhancement

Achievements

- **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)
- **TCS IT WIZ** : Regional Winner at TCS IT Wiz 2010 and represented state at the National Finals

Other Selected Projects

Reducing communication rounds in Federated Learning

Mentor : Prof. Soudeh Ghorbani

Sep'20 - Present

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

Jan'18-May'18

IIT Madras

Teaching Assistant

Physics I

Jun'17-Nov'17

IIT Madras

Project Mentor

Centre for Innovation

Aug'15-Jan'16

IIT Madras

Voluntary Service

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

Relevant Coursework

Computer Vision and Machine Learning: Image Understanding¹, Advanced Techniques in Visual Learning and Recognition¹, Image Signal Processing², Deep Learning², 3D Computer Vision³, Machine Learning for Computer Vision², Computational Linguistics¹, Algorithms in Machine Learning : Guarantees and Analyses¹

Mathematics: Advanced Numerical Optimization¹, Convex Optimization², Probability, Statistics and Stochastic Processes², Linear Algebra and Numerical Analysis², Functions of several variables²

Relevant Skills

Programming Languages: Python, MATLAB, C++, C

Libraries & Tools: PyTorch, TensorFlow

²Indian Institute of Technology Madras

³Czech Technical University in Prague, Czech Republic

¹University of Maryland, College Park