Pulkit Kumar

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Education

University of Maryland, College Park — Aug 2021 -
Ph. D. in Computer Science
Advisor: Abhinav Shrivastava

University of Maryland, College Park — Aug 2019 - May 2021
M.S. in Computer Science
Advisor: Abhinav Shrivastava

Netaji Subhas Institute of Technology, University of Delhi — Aug 2013 - May 2017
B.E. in Information Technology

Employment

Google Research — May 2022 - Mar 2023
Student Researcher
Exploring unsupervised methodologies in hierarchal modeling for improving action and video understanding. Current application being action and step localization.

Paralleldots, Inc.
Senior Data Scientist — Nov 2018 - May 2019
Data Scientist — Jun 2017 - Oct 2018
Data Science Intern — Jun 2015 - Jun 2017
Developing machine learning and deep learning models in multiple domains like computer vision, NLP and speech recognition and applying them in sectors of market research and healthcare.

Indrprastha Institute of Information Technology — May 2017 - May 2019
Research Associate
Exploring computational models to segment brain MRI and detecting bone marrow cancer (Myeloma) from microscopic images of white blood cells.

Selected Publications
(Link in title)

Trajectory-aligned Space-time Tokens for Few-shot Action Recognition
P. Kumar, N. Padmanabhan, L. Luo, S. S. Rambhatla, A. Shrivastava
European Conference on Computer Vision (ECCV), 2024

Explaining the Implicit Neural Canvas (XINC): Connecting Pixels to Neurons
N. Padmanabhan*, M. Gwilliam*, *P. Kumar,* S. R. Maiya, M. Ehrlich, A. Shrivastava
Computer Vision and Pattern Recognition (CVPR), 2024

Agglomerative Clustering of Atomic Actions for Unsupervised Action Segmentation
P. Kumar, A. Myers, A. Arnab, D. A. Ross, A. Shrivastava, S. Vijayanarasimhan
Computer Vision and Pattern Recognition Workshops (CVPRW), 2024

Deep Multimodal Learning for the Diagnosis of Autism Spectrum Disorder
M Tang, *P. Kumar,* H. Chen, A. Shrivastava
Journal of Imaging, 2020

Ongoing Projects

Harnessing point tracking to improve action and video understanding
Using point tracking's explicit motion information on improving the understanding capabilities

Enhancing the memory capabilities of video language models to deal with long videos
Exploring point tracking based memory formulations for video tokenization.

Disentangling the static and dynamic components of a video for better representations
Improving video representation capabilities by encoding both information separately

Workshop Organization

Dealing with Novelty in the Open World
Winter Conference on Applications of Computer Vision (WACV), 2022-2023

Reviewing

CVPR (2020-2024), ICCV (2021, 2023), ECCV (2022, 2024), IJCAI

Teaching Experience

CMSC 472: Introduction to Deep Learning — Spring 2020, Fall 2024
Teaching Assistant with Abhinav Shrivastava

CMSC 848Q: How and Why Artificial Intelligence Answers Questions — Fall 2023
Teaching Assistant with Jordan Boyd-Graber

CMSC 828I: Advanced Techniques in Visual Learning and Recognition — Fall 2020
Teaching Assistant with Abhinav Shrivastava