Archana Swaminathan

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Education

University of Maryland, College Park August 2022 – Present
Doctor of Philosophy (PhD) in Computer Science *GPA: 4.0/4.0*
Advisor: Prof. Abhinav Shrivastava

Birla Institute of Technology and Science, India August 2016 – May 2021
B.E. Electrical Engineering, M.Sc Mathematics (5 year Integrated Program)

Research Interests

Computer Vision: 3D Shape Generation and Reconstruction, Video Understanding, Pose Estimation

Technical Skills

Languages: Python, C/C++ **Frameworks**: PyTorch, MATLAB, Keras, TensorFlow

Publications

- **Archana Swaminathan**, Anubhav Gupta, Kamal Gupta, Shishira Maiya, Vatsal Agarwal, Abhinav Shrivastava, *LEIA: Latent View-invariant Embeddings for Implicit 3D Articulation*, Proceedings of the European Conference on Computer Vision (ECCV), 2024.
- Soumik Mukhopadhyay*, Matthew Gwilliam*, Vatsal Agarwal, Namitha Padmanabhan, **Archana Swaminathan**, Tianyi Zhou, Abhinav Shrivastava, *Do text-free diffusion models learn discriminative visual representations?*, Proceedings of the European Conference on Computer Vision (ECCV), 2024.
- Nirat Saini*, Hanyu Wang*, **Archana Swaminathan**, Vinoj Jayasundara, Bo He, Kamal Gupta, Abhinav Shrivastava, *Chop & Learn: Recognizing and Generating Object-State Compositions*, Proceedings of the IEEE International Conference on Computer Vision (ICCV), 2023.
- Jorge González Escribano, Susana Ruano, **Archana Swaminathan**, David Smith, Aljosa Smolic, *Texture improvement for human shape estimation from a single image*, Proceedings of the 24th Irish Machine Vision and Image Processing conference (IMVIP), 2022.

Research Experience

Amazon Science May 2024 – Aug 2024
Applied Scientist Intern *Bellevue, WA*
- Mentor: Sisir Karumanchi
- Developed an end-to-end, unsupervised object detection and recognition solution for the company.
- Used self-supervised learning, image registration and novel feature matching algorithms.

V-SENSE, Trinity College Dublin May 2020 – Jul 2021
Research Intern *Dublin, Ireland*
- Mentors: Dr. Aljosa Smolic
- Estimating clothed human shape and democratizing training of deep learning models for the same.
- Created an open-source dataset to train models to learn clothed human shape and ran experiments to compare results with the current state-of-the-art.

Robert Bosch R&D May 2019 – Jul 2019
Research Intern *Bangalore, India*
- Mentor: Tony Francis
- Deployment of an end-to-end solution for achieving accurate product classification with limited training data in the retail environment. Used the principle of few shot learning and a custom Convolutional Neural Network architecture to achieve a state-of-the art product rollout with end-to-end lightweight deep learning.

Awards

Dean's Fellowship, University of Maryland, College Park 2022, 2023
Summer Research Fellowship, University of Maryland, College Park 2023