

# Divya Kothandaraman

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## Research Interests:

My research interests are in the broad areas of computer vision and deep learning. My current/past research has focused on the following:

**Generative AI:** View synthesis, Image and video personalization

**Perception:** Domain adaptation, Video action recognition

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## Education:

University of Maryland College Park, USA - PhD in Computer Science (Aug 2020 - present)

Advisor: Prof. Dinesh Manocha

Committee: Prof. Ming Lin, Prof. Tianyi Zhou, Prof. Jia-Bin Huang

Indian Institute of Technology Madras, Chennai, India - Bachelor of Technology in Electrical Engineering & Master of Technology in Data Sciences (Jul 2015 - Jul 2020)

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## Publications:

[14] **Divya Kothandaraman**, Tianyi Zhou, Ming Lin, Dinesh Manocha. “HawkI: Homography and Mutual Information Guidance for 3D-free Single Image to Aerial View”. (Under Review)

[Paper](#)

[13] **Divya Kothandaraman**, Kihyuk Sohn, Ruben Villegas, Paul Voigtlaender, Mohammad Babaeizadeh. “Beyond Single Concept Customization of Text to Video Models”. (Under Review)

[12] **Divya Kothandaraman**, Kuldeep Kulkarni, Sumit Shekhar, Balaji Vasan Srinivasan, Dinesh Manocha. “ImPoster: Frequency Guidance for Subject-Driven Action Transfer from Image using Diffusion Models”. (Under Review)

[11] Ruiqi Xian, Xijun Wang, **Divya Kothandaraman**, Dinesh Manocha. “PMI Sampler: Patch similarity guided frame selection for Aerial Action Recognition”. IEEE/ CVF Winter Conference on Applications of Computer Vision (WACV) 2024 [Paper](#)

[10] **Divya Kothandaraman**, Tianyi Zhou, Ming Lin, Dinesh Manocha. “Aerial Diffusion: Text Guided Ground-to-Aerial View Translation from a Single Image using Diffusion Models”. Siggraph Asia 2023 (Conference Proceedings - Technical Communications, 8 mins Oral) [Paper](#)

[9] **Divya Kothandaraman**, Ming Lin, Dinesh Manocha. “DiffAR: Differentiable Frequency-based Disentanglement for Aerial Video Activity Recognition”. IEEE International Conference on Robotics and Automation (ICRA) 2023 [Paper](#)

[8] **Divya Kothandaraman**, Sumit Shekhar, Abhilasha Sancheti, Manoj Ghuman, Tripti Shukla, Dinesh Manocha. “DistillAdapt: Source Free Active Visual Domain Adaptation”. IEEE/ CVF Winter Conference on Applications of Computer Vision (WACV) 2023 [Paper](#)

- [7] James Mullen, **Divya Kothandaraman**, Aniket Bera, Dinesh Manocha. “Placing Human Animations into 3D Scenes by Learning Interaction and Geometry-Driven Keyframes”. IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2023 [Paper](#)
- [6] **Divya Kothandaraman**, Tianrui Guan, Xijun Wang, Sean Hu, Ming Lin, Dinesh Manocha. “FAR: Fourier Disentangled Space Time Attention for UAV Activity Recognition”. European Conference on Computer Vision (ECCV) 2022 [Paper](#)
- [5] Tianrui Guan, **Divya Kothandaraman**, Rohan Chandra, Dinesh Manocha. “GANav: Group-wise Attention Network for Classifying Navigable Regions in Unstructured Outdoor Environments”. IEEE Robotics and Automation Letters (RA-L) 2022 and IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2022. [Project Page](#)
- [4] **Divya Kothandaraman**, Rohan Chandra, Dinesh Manocha. “SS-SFDA: Self-Supervised Source Free Domain Adaptation for Road Segmentation in Hazardous Environments”. IEEE/CVF International Conference on Computer Vision Workshops (ICCV-W) 2021 (Oral). [Project Page](#)
- [3] **Divya Kothandaraman**, Rohan Chandra, Dinesh Manocha. “BoMuDA: Boundless Multi-Source Domain Adaptive Segmentation in Unconstrained Environments”. IEEE/CVF International Conference on Computer Vision Workshops (ICCV-W) 2021 [Project Page](#)
- [2] **Divya Kothandaraman**, Athira Nambiar, Anurag Mittal. “Domain Adaptive Knowledge Distillation for Driving Scene Semantic Segmentation”, IEEE/CVF Winter Conference on Applications in Computer Vision Workshops (WACV-W) 2021 [Paper](#) [Slides](#)
- [1] Varun Sundar, Sumanth Hegde, **Divya Kothandaraman**, Kaushik Mitra. “Deep Atrous Guided Filter for Image Restoration in Under Display Cameras”. European Conference on Computer Vision Workshops (ECCV-W) 2020 [Paper](#)
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## Patents:

- [2] **Divya Kothandaraman**, Kuldeep Kulkarni, Sumit Shekhar, Balaji Vasan Srinivasan, Dinesh Manocha. “ImPoster: Frequency Guidance for Subject Driven Action Transfer from Image using Diffusion Models”. (US Patent with Adobe Research - under review).
- [1] **Divya Kothandaraman**, Sumit Shekhar, Abhilasha Sancheti, Manoj Ghuhane, Tripti Shukla. “Systems and Methods for Active Domain Adaptation”. US Patent App. 17/648,482, 2023.
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## Professional Experience

**Research Intern, Google DeepMind (Brain)** *Mountain View, California*, May 2023 - Aug 2023

- Video Personalization with Mohammad Babaeizadeh, Kihyuk Sohn and Ruben Villegas; paper under review.

**Research Intern, Adobe Research**

*Remote (India)*, May 2022 - Aug 2022

- Exemplar Image Animation with Kuldeep Kulkarni; paper under review.

**Research Intern, Adobe Research**

*Remote (India)*, May 2021 - Aug 2021

- Domain Adaptation with Sumit Shekhar. Paper published at WACV 2023.

**Research Intern, Intel**

*Remote (India)*, Aug 2020 - Jan 2021

- Incremental Few-shot Object Detection in Unstructured Traffic Environments

**RnD intern, Samsung Research Institute**

*Bangalore, India May 2018 - July 2018*

- Advanced technologies lab, Researched single-view 3D reconstruction for AR

**Research Intern, Indian Institute of Science Bangalore**

Advisor: Prof. Venu Madhav

*Bangalore, India May-Jul '17&Dec '17*

- Multi-view 3D reconstruction and motion averaging for Iterative Closest Point Algorithm

### **Talks:**

- [Invited Talk, Mar 2024] 3D-free Text Controlled Aerial-View Synthesis from a Single Image using Diffusion Models, High-Beams Seminars, University College London (UCL)
- [Contributed Talk, Dec 2023] Aerial Diffusion: Text Guided Ground to Aerial View Synthesis using Diffusion Models, SIGGRAPH Asia 2023
- [Contributed Talk, Jan 2023] SALAD: Source-free Active Label Agnostic Domain Adaptation, WACV 2023
- [Contributed Talk, Oct 2021] SS-SFDA: Self-Supervised Source Free Domain Adaptation for Road Segmentation in Hazardous Weather Conditions, ICCV-W 2021

### **Professional service:**

- Reviewer: TIP, TPAMI, IEEE-RAL, CVPR '22, ECCV '22, WACV '23, AAAI '23, BADUE IROS '23, CVPR '23, ICCV '23, AAAI '24, WACV '24, ICRA '24, CVPR '24
- Committee member, UMD CS Graduate School Applications 2021, 2022, 2023
- GradCo CS Peer Mentor, UMD (Spring 2022, Fall 2022)

### **Awards and Scholastic Achievements:**

- ICSSA Travel grant award of \$270 from UMD for SIGGRAPH Asia 2023
- Goldhaber Travel grant award of \$600 from UMD for SIGGRAPH Asia 2023
- Dean's Fellowship 2020, University of Maryland College Park
- Secured All India Rank 1065 in Joint Entrance Exam Advanced 2015, taken by 1.3 million students (99.92 percentile).
- Qualified for INChO (Indian National Chemistry Olympiad) 2015, state top 1% in NSEP (physics olympiad) and NSEC (chemistry olympiad).

### **Teaching Experience:**

Jul-Nov 2019: Teaching Assistant for the course EE4708, Data Analytics Laboratory, IIT Madras

Jan -May 2020: Teaching Assistant for EE1101 Signals and Systems, IIT Madras