

Kuldeep S. Kulkarni

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Summary

I have been fascinated by pixels for the past decade or so and have worked on various problems in computer vision. For the past six years at Adobe, I have been working on generative models including GANs and diffusion models with a track record of publishing in top-conferences as well as shipping into product that garnered media coverage. At Adobe Research India, I was the first computer vision researcher in the team and since then I have been a major contributor in the development of the team by attracting top talent in computer vision into the team.

Employment

Research Scientist at Adobe Research, Bengaluru (Mar 2019- present)

Post-doctoral Researcher at Carnegie Mellon University, Pittsburgh (August 2017- Feb 2019) Advisor: Aswin Sankaranarayanan

Education

- **PhD** in Electrical Engineering with Arts, Media and Engg. (AME) concentration (Fall 2012 - Summer 2017), Arizona State University, Tempe

Product Impact:

- Our image animation technology, "Moving Elements", that is inspired by our CVPR 2022 paper is shipped to and is available in Adobe Photoshop Elements 2023. Media coverage: Forbes, TechCrunch.

Publications, Book Chapters and Patents

- Saksham Singh Kushwaha, Sayan Nag, Yapeng Tian, **Kuldeep Kulkarni**, Object-WIPER: Training-Free Object and Associated Effect Removal in Videos, arXiv 2026
- Divya Jyoti Bajpai, Shubham Agarwal, Apoorv Saxena, **Kuldeep Kulkarni**, Subrata Mitra, Manjesh Kumar Hanawal, FlowCast: Trajectory Forecasting for Scalable Zero-Cost Speculative Flow Matching, ICLR 2026
- Nithin C Babu, Aniruddha Mahapatra, Harsh Rangwani, Rajiv Soundararajan, **Kuldeep Kulkarni**, DynamicEval: Rethinking Evaluation for Dynamic Text-to-Video Synthesis, arXiv 2025
- Harsh Rangwani, Aishwarya Agarwal, **Kuldeep Kulkarni**, R Venkatesh Babu, Srikrishna Karanam, Composing Parts for Expressive Object Generation, CVPR 2025
- Utkarsh Nath, Rajhans Singh, Ankita Shukla, **Kuldeep Kulkarni**, Pavan Turaga, Polynomial implicit neural framework for promoting shape awareness in generative models, IJCV 2025
- Swasti Shreya Mishra, **Kuldeep Kulkarni**, Duygu Ceylan, Balaji Vasan Srinivasan, FLOAT: Flow Warping of Self-attention for Clothing Animation Generation
- Divya Kothandaraman, **Kuldeep Kulkarni**, Sumit Shekhar, Balaji Vasan Srinivasan, Dinesh Manocha, ImPoster: Text and Frequency Guidance for Subject Driven Action Personalization using Diffusion Models, COLING 2025
- Nihal Jain, Praneetha Vaddamanu, Paridhi Maheshwari, Vishwa Vinay, **Kuldeep Kulkarni**, Self-supervised multi-view disentanglement for expansion of visual collections, WSDM 2023
- Tripti Shukla, Paridhi Maheshwari, Rajhans Singh, Ankita Shukla, **Kuldeep Kulkarni**, Pavan Turaga, Scene graph driven text-prompt generation for image inpainting, CVPR 2023 workshop
- Hugo Bertiche, Niloy J Mitra, **Kuldeep Kulkarni**, Chun-Hao P Huang, Tuanfeng Y Wang, Meysam Madadi, Sergio Escalera, Duygu Ceylan, Blowing in the wind: Cyclenet for human cinemagraphs from still images, CVPR 2023
- Rishi Agarwal, Tirupati Saketh Chandra, Vaidehi Patil, Aniruddha Mahapatra, **Kuldeep Kulkarni**, Vishwa Vinay, GEMS: Scene expansion using generative models of graphs, WACV 2023

- Rushil Gupta, Suryateja BV, Nikhil Kapoor, Rajat Jaiswal, Sharmila Nangi, **Kuldeep Kulkarni**, User-Guided Variable Rate Learned Image Compression, CVPR 2022 Workshop
- Aniruddha Mahapatra, **Kuldeep Kulkarni**, Controllable animation of fluid elements in still images, CVPR 2022
- Bholeswar Khurana, Soumya Ranjan Dash, Abhishek Bhatia, Aniruddha Mahapatra, Hrituraj Singh, **Kuldeep Kulkarni** ‘SemIE: Semantically-aware Image Extrapolation’ at ICCV 2021
- **Kuldeep Kulkarni**, Tejas Gokhale, Rajhans Singh, Pavan Turaga, Aswin Sankaranarayanan, ‘Halluci-Net: Exploiting Object Co-occurrence for Scene Completion’, CVPR 2021 Workshop
- Michael Jones, Tim Marks, **Kuldeep Kulkarni**, Method and System for Detecting Actions in Videos using Contour Sequences, US Patent 15/670,021, 2019
- Suhas Lohit, Rajhans Singh, **Kuldeep Kulkarni**, Pavan Turaga, Rank-Regularized Measurement Operators for Compressive Imaging, Asilomar Conference, 2019
- **Kuldeep Kulkarni**, Pavan Turaga, Anuj Srivastava, Rama Chellappa, Pattern Recognition, **Wiley Encyclopedia on Electrical and Electronics Engineering**.
- **Kuldeep Kulkarni**, Suhas Lohit, Pavan Turaga, Ronan Kerviche, Amit Ashok, ‘ReconNet: Non-Iterative Reconstruction of Images from Compressively Sensed Measurements’, CVPR 2016 [**citations:** ~ 1000].
- Suhas Lohit, **Kuldeep Kulkarni**, Ronan Kerviche, Pavan Turaga, Amit Ashok, ‘Convolutional Neural Networks for Non-iterative Reconstruction of Compressively Sensed Images’, IEEE Transactions on Computational Imaging 2018
- **Kuldeep Kulkarni**, Pavan Turaga, ‘Reconstruction-Free Action Inference from compressive imagers’, IEEE Transactions on Pattern Analysis and Machine Intelligence, 2016
- **Kuldeep Kulkarni**, Pavan Turaga, ‘Fast integral image estimation at 1% measurement rate’
- Sohil Shah, **Kuldeep Kulkarni**, Arijit Biswas, Ankit Gandhi, Om Deshmukh, Larry Davis, ‘Weakly Supervised Learning of Heterogeneous Concepts in Videos’, ECCV 2016
- Suhas Lohit, **Kuldeep Kulkarni**, Pavan Turaga, Jian Wang, Aswin Sankaranarayanan ‘Reconstruction-free Inference on Compressive Measurements’, 4th IEEE Workshop on Computational Cameras and Displays (CCD), held in conjunction with IEEE CVPR, 2015. (**Best Paper Award**)
- Mayank Gupta*, Arjun Jauhari*, **Kuldeep Kulkarni**, Suren Jayasuriya, Alyosha Molnar, Pavan Turaga, ‘Compressive Light Field Reconstruction using Deep Learning’, at CVPR 2017 CCD workshop
- Suhas Lohit, **Kuldeep Kulkarni**, Pavan Turaga, ‘Direct Inference on Compressive Measurements using Convolutional Neural Networks’, ICIP 2016
- **Kuldeep Kulkarni**, Pavan Turaga, ‘Recurrence Textures for Activity Recognition from compressive cameras’, ICIP 2012
- Ankit Gandhi, Arijit Biswas, Om Deshmukh, Sohil Shah, **Kuldeep Kulkarni**, Method and System for Multimedia Processing to Identify Concepts in Multimedia, patent application submitted to USPTO.
- Li-Chi Huang, **Kuldeep Kulkarni**, Pavan Turaga, Anik Jha, Suhas Lohit, Suren Jayasuriya, Pavan Turaga, CS-VQA: Visual Question Answering with Compressively Sensed Images, ICIP 2018.

Patents

About 25 patents that are in various stages (issued or filed yet to be issued or accepted yet to be filed). Please check my Google scholar profile for the full list of issued patents so far.

Mentoring Experience

I have mentored the following undergrad, masters and PhD students as well as research associates/predocs. Please find full list and their current coordinates on my website.