Deepak Sridhar
San Diego, California

+1 8582411699, deepaksridhar94@gmail.com
LinkedIn: https://www.linkedin.com/in/deepak-sridhar
Website: https://deepaksridhar.github.io/

Profile

I am a fourth year PhD student at SVCL, UCSD working under Prof. Nuno Vasconcelos on computer vision problems focused on **multimodal generation, editing and reasoning**. In particular, I have worked on an efficient diffusion model framework (project page, NeurIPS'24), efficient prompting techniques (project page, ECCV'24) and efficient video reasoning (paper) that address problems such as better prompt compliance, controllability, modularity, and editing for multi-modal generation. Previously, I worked on fundamental problems such as efficient image classification, detection and action recognition. I am actively seeking **internship opportunities** related to multimodal generation and understanding.

Education

PhD, Electrical and Computer Engineering, Generative Models **2022-2026**
University of California, San Diego, La Jolla, California **CGPA: 3.93/4**

Master of Engineering, Electrical and Computer Engineering, Thesis **2016-2018**
McGill University, Montreal, Quebec **CGPA: 3.88/4**

Bachelor of Technology, Instrumentation and Control Engineering **2012 -2016**
National Institute of Technology Tiruchirappalli (NITT), India **CGPA: 9.6/10**

Research Interests

Diffusion Models, Controllable Multimodal Synthesis, Inversion and Editing, Personalization, Efficient Model architectures.

Selected Publications

Google Scholar

D Sridhar*, K Bhardwaj*, Jeya P Jeyaraj, N Vasconcelos, A Nayak, H Teague, **Video Reasoning without Training, arXiv 2025**
D Sridhar, A Peri, R Rachala, N Vasconcelos, **Adapting Diffusion Models for Improved Prompt Compliance and Controllable Image Synthesis, NeurIPS 2024**
D Sridhar, N Vasconcelos **Prompt Sliders for Fine-Grained Control, Editing and Erasing of Concepts in Diffusion Models**, **ECCV Workshops**, **2024**
Y Li, **D Sridhar**, H Liang, A Wong, **Spot the Difference! Temporal Coarse to Fine to Finer Difference Spotting for Action Recognition in Videos**, **ICME 2024**
D Sridhar, Y Li, N Vasconcelos **SCHEME: Scalable Channer Mixer for Vision Transformers, arXiv 2023**
D Sridhar, N Quader, S Muralidharan, Y Li, P Dai, J Lu, **Class Semantics-based Attention for Action Detection**, **ICCV 2021**, 13739-13748

Professional Experience

PhD Research Intern: Jun 2025-Sep 2025
Qualcomm Technologies, San Diego, California

- **Efficient Video Reasoning** - Designed a novel technique for enhancing video reasoning of Large Multimodal Models (LMMs) with 58.6% improved efficiency and within 0.6% accuracy of the RL trained model.

Senior Computer Vision Research Engineer: May 2018-Aug 2022
Huawei Technologies Canada Co., Toronto, Ontario

- **Hand Pose Project** - Led a small group of research engineers to develop a real-time hand pose estimation engine that was deployed for Huawei Education Tools applications in Huawei Smart Lamp.
  - Designed the end-to-end model pipeline for detecting, classifying, and localizing the hand joints.
  - Achieved the accuracy requirement (< 20 MPJPE), size (~5 MB) and speed requirements (>50 FPS) on mobile devices.
  - Designed a lightweight 3D hand joints and mesh estimation model (10% less FLOPs) that can run in real-

time on low resource devices with competitive accuracy compared with large models. The architecture uses transformers as the learning head for joints and mesh prediction.

- **Smart TV Gesture Control Project** – Developed a tiny hand detection and hand classification model that surpassed the accuracy requirements (> 95% precision and > 90% recall) for detecting smart gestures such as swipe, drag and openhand. It runs under 15 ms/image speed on Huawei mobile devices. The models were successfully deployed in Huawei Smart TV launched in early 2020.

- **Action Detection** – Developed an action localization network that achieved second position in ActivityNet Challenge 2021/2022 Temporal Action Localization workshops held at CVPR'21, '22. Published a paper in ICCV'21 based on a novel attention mechanism that achieved state-of-the-art performance on action detection benchmarks – ActivityNetv1.3 and THUMOS14 datasets.

Skills

Programming: Python, Pytorch, TensorFlow, MATLAB, Caffe, C++

Software: Git, Visual Studio Code, Kubernetes, CI/CD, Docker, Pycharm, Android Studio, Microsoft Suite (PPT, Excel)

Academic Service

Reviewer: CVPR ('22-'25), ECCV ('22-'24), ICCV ('23-'25), NeurIPS ('23-'25), TNNLS ('20-'21), TPAMI ('23-'25)
Teaching Assistant: ECE 271A/271B Statistical Learning, ECE 101 Linear Systems

US Patents Filed

Devices and methods for single or multi-user gesture detection using computer vision	**Feb 2022**
Systems and methods for video retrieval and grounding	**Nov 2021**
Devices and methods for gesture-based selection using machine vision	**Aug 2021**
Methods, devices, and computer readable media for training a keypoint estimation network using cgan-based data augmentation	**May 2021**
Systems, methods, and computer media for joint attention video processing	**Mar 2021**

Awards

- Awarded **Qualcomm Innovation Fellowship** | 2025
- Awarded **Outstanding Reviewer Award** at ECCV | 2024
- Awarded **Graduate Student Service Award** by ECE department at UCSD | 2023
- Awarded **Jacobs Fellow Award** (highest recognition in ECE department at UCSD) | 2022
- Awarded **Outstanding Individual Award** for the year 2021 by Huawei Canada for leading a small team of research engineers to successfully deliver a project, publishing a top-tier conference paper and filing multiple patents | 2021
- Awarded the **Globalink Graduate Fellowship** of value 15000 CAD by Mitacs Inc. | 2016-2017
- Awarded the **Graduate Excellence Fellowship** of value 7500 CAD by McGill University | 2016-2017

Leadership and Volunteering

- **PhD Representative** ECE Graduate Student Council (ECE GSC), UCSD, 2022 - Present: Organized 1st year PhD students' happy hour, beach bonfire events where students socialize with food and drinks. Handled the communications and logistics aspects.
- **Community Assistant**, Graduate and Family Housing, UCSD, 2023 - 2024: Organized several programs (e.g., Diwali celebration, Writing retreat etc.) to build the graduate housing community to promote a sense of belonging.
- **Vice President (Operations)** Electrical Engineering Graduate Students Society (EEGSS) Council, McGill University (2017-2018): Managed events such as Activity Night, EEGSS Holiday Lunch and conducted monthly meetings with EEGSS council members.