

# ANIRUDDHA MAHAPATRA

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## Education

### Carnegie Mellon University - School of Computer Science

Master of Science in Computer Vision (Robotics Institute) | CGPA: 4.05/4.00

Pittsburgh, PA

Dec 2023

### Indian Institute of Technology

Bachelor of Technology in Computer Science | CGPA: 9.41/10.00 | Department Rank: 2/76

Roorkee, India

May 2020

## Experience

### Generative Intelligence Lab, Robotics Institute, CMU

Research Assistant | Advisor: Prof. Jun-Yan Zhu

Pittsburgh, PA

Sept 2022 – Present

- Introduced a novel task of generating artistic style cinemagraphs from text descriptions for fluid elements
- Formulated a method of generating paired artistic and real images from input prompt to facilitate motion prediction
- Achieved 76% Human Evaluation preference over best-performing baseline for text to cinemagraph task; outperformed SOTA single image to cinemagraph method on Eulerian dataset by 14.7 % FVD [Paper (SIGGRAPH ASIA 2023)]

### Snap Research

Research Intern | Advisor: Dr. Aliaksandr Siarohin and Dr. Sergey Tulyakov

Santa Monica, CA

May 2023 – Present

- Working on controllable video generation from a user-specified sparse trajectory and single image with Stable Diffusion
- Designed a flow-based propagation method in feature space of Stable Diffusion to generate temporally consistent frames; achieved increased robustness to generation of different numbers of frames at variable frame rates during inference compared to existing video generation methods of cross-frame attention and temporal attention

### Adobe Research

Research Associate 2 | Advisor: Dr. Kuldeep Kulkarni

Bangalore, India

Aug 2020 – Aug 2022

- Developed a deep-learning algorithm for generating user-guided animated videos from a single still image for natural scenes; improved quality of generated animations by 8.5 % FVD compared to SOTA [Paper (CVPR 2022)]
- **Tech-Transfer:** Coordinated with Product and Engineering teams to deploy part of the above pipeline for “Moving Elements” feature in Adobe Photoshop Elements 2023 application on Mac and Windows devices, taking just 10 seconds to generate 6 seconds 1080p animations [Media Coverage] [Video]
- Collaborated in a team of 6 to ideate and implement a solution to image outpainting in semantic label map paradigm; outperformed SOTA on Cityscapes and ADE20K-bedroom datasets by 28.7% and 33.9% FID respectively [Paper (ICCV 2021)] [Patent (US 17/521,503)]

### Adobe Research

Research Intern | Advisor: Dr. Subrata Mitra

Bangalore, India

May 2019 – Jul 2019

- Empowered retail-store aggregate video analytics on edge devices for Adobe Analytics by designing an end-to-end method for adaptive deep video compression and action recognition
- Reduced the CPU and GPU memory requirement by up to 3x and 5.7x respectively for action recognition compared to SOTA models that operate on RGB videos [Patent (US 17/651,076)]

## Selected Publications

Text-Guided Synthesis of Eulerian Cinemagraphs

A. Mahapatra, A. Siarohin, HY. Lee, S. Tulyakov, JY. Zhu

SIGGRAPH ASIA 2023 (Journal)

[Paper] [Website] [Code]

Controllable Animation of Fluid Elements in Still Images

A. Mahapatra, K. Kulkarni

CVPR 2022

[Paper] [Website]

Semie: Semantically-aware image extrapolation

B. Khurana, SR. Dash, A. Bhatia, A. Mahapatra, H. Singh, and K. Kulkarni

ICCV 2021

[Paper] [Website]

GEMS: Scene Expansion using Generative Models of Graphs

R. Agarwal\*, TS. Chandra\*, V. Patil\*, A. Mahapatra\*, K. Kulkarni, V. Vinay

WACV 2023

[Paper]

Entity Extraction in Low Resource Domains with Selective Pre-training of Large Language Models

A. Mahapatra, S. Nangi, A. Garimella, A. Natarajan

EMLNP 2022 (Oral)

[Paper]

## Skills

**Programming Languages:** Advanced: Python; Intermediate: C++

**Developer Tools:** Advanced: VS Code, Linux, Git; Intermediate: Docker

**Frameworks/Libraries:** Advanced: PyTorch, NumPy, OpenCV; Intermediate: CoreML, PyTorch Lightning