

# PRANAY REDDY ANTHIREDDY

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## EDUCATION

### University of Massachusetts Amherst

Expected May 2024

*Masters of Science in Computer Science*

GPA: 3.89/4

**Relevant Courses** - Computer Vision, Neural Networks, Distributed Operating Systems, Machine Learning, Advanced Natural Language Processing, Intelligent Visual Computing, Systems for Data Science, Advanced Algorithms.

**Responsibilities** - Graduate Teaching Assistant (Grader) for CS370 - Introduction to Computer Vision

### Indian Institute of Information Technology, Jabalpur

May 2022

*Bachelor of Technology in Electronics & Communication Engineering*

GPA: 3.34/4

**Relevant Courses** - Probability & Random Processes, Image Processing, Digital Watermarking, Signals & Systems, Fundamentals of Robotics, Computer Networks, Data Structures and Algorithms.

## WORK EXPERIENCE

### Meta (formerly Facebook)

Feb 2023 – May 2023

*Graduate Student Researcher*

*Mentor: Dr. Shane Moon, Aparajita Saraf - Reality Labs*

- Designed a new vision encoder to account for hand object interactions in the video data with the IMU signals to improve upon the IMU to Video alignment.
- Developed an enhanced IMU encoder using multi-objective loss optimization and normalization techniques that outperformed standalone IMU2CLIP model by 9.6% on recall and 6.2% on MRR.

### Carnegie Mellon University

Sep 2021 – Nov 2022

*Research Intern*

*Mentor: Dr. Chen Wang, Prof. Sebastian Scherer - AirLab*

- Proposed a brand new few-shot object detection model free of fine-tuning and improved baseline by up to 60% (even higher than carefully fine-tuned models). Work has been **accepted at ECCV 2022**.
- Contributed to PyPose, a physics based deep learning optimisation library, where I worked on developing euler2SO3, and Adjoint functions. Work has been **accepted at CVPR 2023**

### Indian School of Business, Hyderabad

May 2021 – Aug 2022

*Research Intern*

*Mentor: Dr. Sumeet Kumar - SRITNE*

- Curated three new datasets from scratch, fine-tuned on SimCLR and Supervised Contrastive Learning, established optimal accuracies for the product identification task, and created the pipeline for end-to-end ad recognition.

## PUBLICATIONS

- [1] Wang, C., Gao, D., Xu, K., ...**Pranay Reddy**..., Scherer, S., **PyPose: A Library for Robot Learning with Physics-based Optimization.**, (CVPR 2023, Accepted) [\[Link\]](#)
- [2] Bowen Li, Chen Wang, **Pranay Reddy**, Seungchan Kim, Sebastian Scherer, "**AirDet: Few-Shot Detection without Fine-tuning for Autonomous Exploration**," (ECCV 2022, Accepted) [\[Link\]](#)

## SKILLS

- Frameworks:** PyTorch, TensorFlow, Flask, Keras, PyTorch Lightning
- Tools and Languages:** Python, C/C++, Bash, MATLAB, Git, Docker, Azure, GCP, AWS, Hugging Face
- Libraries:** Numpy, Pandas, Matplotlib, OpenCV, NLTK, spaCy, scikit-learn, WandB, ffmpeg, Apache Spark

## SELECTED PROJECTS

Find the complete list [here](#)

- PageRank Recommendation System** [\[Link\]](#)  
Built a movie recommendation system utilizing the PageRank algorithm on Apache Spark and GraphX, to rank and recommend movies from the MovieLens dataset based on user ratings, employing Scala for efficient data processing and graph construction.
- Compact Diffusion Models** [\[Link\]](#)  
Developed a compact diffusion model for high-fidelity image generation on resource-constrained devices, leveraging techniques like mixed-precision training, post-training quantization, and knowledge distillation, with evaluations conducted on the CIFAR-10 dataset.

## ACHIEVEMENTS

- Winner:** Seldonian ML Toolkit Competition [\[Link\]](#)

## VOLUNTEERING

- Reviewer:** IEEE Robotics and Automation Letters (RA-L).