Himangi Mittal

+1 (425) 428-8396
hmittal@andrew.cmu.edu
https://himangim.github.io/

Available for Spring 2026 / Summer 2026 / Fall 2026 internships

Education

Carnegie Mellon University, Robotics Institute — Pittsburgh, PA, USA
Ph.D. in Robotics — Aug 2023 - Aug 2028 *(Expected)*

- Advisor: Prof. Shubham Tulsiani
- Research: Physics-Informed Multimodal Generative World Models via Differentiable Simulation and Material Reasoning Agents
- GPA: 4.10/4.00

Carnegie Mellon University, Robotics Institute — Pittsburgh, PA, USA
Master of Science in Robotics (MSR) — Aug 2021 - May 2023

- Advisor: Prof. Abhinav Gupta
- Research: Multimodal Audio-Visual Contrastive Learning in Egocentric Videos
- GPA: 4.08/4.00

Jaypee Institute of Information Technology (JIIT), Sector 62 — Noida, India
Bachelor of Technology (Honors) , Computer Science&Engineering July 2015 - May 2019

- Advisor: Prof. Anuja Arora
- Research: Spatio-Temporal Graph Understanding using Graph Neural Networks (GNN) and Scene Graphs
- GPA: 8.70/10.00

Publications

1. Su Sun, Cheng Zhao, **Himangi Mittal**, Gaurav Mittal, Rohith Kukkala, Yingjie Victor Chen, Mei Chen. "Track4Animate3D: Animating Any 3D Model via Multi-View Diffusion with Point-Tracking Motion Priors". (under review).
2. **H. Mittal**, Peiye Zhuang, Hsin-ying Lee, Shubham Tulsiani. "UniPhy: Learning a Unified Constitutive Model for Inverse Physics Simulation". **CVPR 2025**.
3. **H. Mittal**, Nakul Agarwal, Shao-Yuan Lo, Kwonjoon Lee. "Can't make an Omelette without Breaking some Eggs: Plausible Action Anticipation using Large Video-Language Models". **CVPR 2024**.
4. **H. Mittal**, Pedro Morgado, Unnat Jain, Abhinav Gupta. "Learning State-Aware Visual Representations from Audible Interactions". **NeurIPS 2022**.
5. **H. Mittal**, Brian Okorn, David Held. "Just go with the flow: Self-supervised scene flow estimation". **CVPR 2020** (Oral – 5.7% acceptance rate).
6. **H. Mittal**, Arpit Jangid, Brian Okorn, David Held. "Self-Supervised Point Cloud Completion via Inpainting". **BMVC 2021** (Oral – 3.3% acceptance rate).
7. Sahana Prabhu, **H. Mittal**, Rajesh Varagani, Swecha Jha, Shivendra Singh. "Harnessing emotions for depression detection". **Pattern Analysis & Applications Journal (PAA) 2021.**
8. **H. Mittal**, Ajith Abraham, Anuja Arora. "Interpreting Context of Images using Scene Graphs". International Conference on **Big Data Analytics (BDA) 2019.**
9. Supriya Pandhre, **H. Mittal**, Manish Gupta, Vineeth N. Balasubramanian. "Stwalk: learning trajectory representations in temporal graphs". ACM India Joint International Conference on **Data Science and Management of Data (CoDS-COMAD) 2018.**
10. Anshika Chaudhary, **H. Mittal**, Anuja Arora. "Anomaly Detection using Graph Neural Networks". IEEE Intl. Conf. on **ML, Big Data, Cloud & Parallel Computing 2019.**

Patents

H. Mittal, Nakul Agarwal, Shao-Yuan Lo, Kwonjoon Lee. "Plausible Action Anticipation for Large Video-Language Models". **Patent No. 12386890, Application No. 18629275.**

Professional Experience

Research Intern/Student Associate, Honda Research Institute (HRI) | San Jose, CA
May 2023 - Aug 2023

- Worked on Multimodal Large Language Models (MLLMs) for action anticipation on large-scale egocentric datasets (Ego4D, EPIC-Kitchens-100) to advance multimodal reasoning and agentic world models by ensuring plausibility and diversity of predicted actions (published in CVPR 2024).

Research Assistant, Carnegie Mellon University (in collaboration with Argo AI) | Pittsburgh, PA, USA Aug 2019 - July 2021

- Designed a state-of-the-art self-supervised learning algorithm for scene flow estimation on large-scale LiDAR point clouds on nuScenes and KITTI (published in CVPR 2020 (Oral).
- Developed an autoencoder-based self-supervised model for point cloud completion on synthetic dataset, Shapenet, and real-world LiDAR dataset, KITTI, to improve 3D perception from sparse, incomplete point clouds (published in BMVC 2021 (Oral)).
- Worked on multimodal algorithms for autonomous driving in CARLA simulator on NoCrash benchmark to advance decision-making of autonomous systems.

Research Intern, Robert Bosch Engineering and Business Solutions Pvt. Ltd., India (RBEI) | Bangalore, India May 2018 - July 2018

- Built a Conv-LSTM model in PyTorch to detect stress levels from multimodal data using the DAIC-WOZ dataset (published in PAA 2021).

Research Intern, Indian Institute of Technology (IIT) Hyderabad | Hyderabad, India
May 2017 - July 2017

- Developed a graph representation learning framework using DeepWalk algorithm on spatio-temporal graphs in NetworkX (Python), enabling classification and changing points of interest detection using SVMs (published in CoDS-COMAD 2018).

Android Development Intern, HCL Career Development Centre, India | Delhi, India
June 2016 - July 2016

- Developed a Time Management Android app with a GUI to track daily activities.

Coursework

Physics-based Animation of Solids and Fluids (15-763), Computer Vision (16-720B), Multimodal Machine Learning (11-777), Visual Learning & Recognition (16-824), Machine Learning (10-601), Research2Startup (16-737A), Deep Learning for Robotics (16-884 A), NLP, Data Structures & Algorithms

Tech Skills

Pytorch, Tensorflow, Python, C/C++, Taichi, NVIDIA Warp, Differentiable Simulation, Material Point Method (MPM), Genesis

Academic Services

Reviewer: **ICCV** 2021 / 2023, **CVPR** 2022 / 2023 / 2024 / 2025, **NeurIPS** 2023 / 2025, **ICML** 2024 / 2025, **AAAI** 2022, **Pattern Recognition Journal**, **WACV** 2022 / 2024 / 2025, **ACCV** 2024, **BMVC** 2025.

Meta-Reviewer: WiCV @ CVPR 2025, WiCV @ CVPR 2024

Workshops Organizer:

- WiCV @ CVPR 2025, CVPR 2024
- DEI Social Event @ CVPR 2024
- Challenges/Opportunities for Early Career Researchers (ECRs) in Fast Paced AI Social Event @ CVPR 2024

Teaching Experience: Head TA for 16-824-Visual Learning and Recognition (Spring 2024), TA for 16-720A-Computer Vision (Fall 2025), 16-825-Learning for 3D Vision (Spring 2023)