Kumar Ashutosh

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Education

2021 – Present — **The University of Texas at Austin** — *Austin, TX*
Ph.D. in Computer Science
Advisor: Kristen Grauman
Research area: Computer Vision, Machine Learning

2016 – 2021 — **Indian Institute of Technology Bombay** — *Mumbai, India*
Master's in Electrical Engineering
Thesis title: *3D Shape Reconstruction with View-Planning.*

Indian Institute of Technology Bombay
Bachelor's in Electrical Engineering, Minor in Computer Science

Work Experience

Present	**Meta AI,** Visiting Researcher	*Austin, TX*
	UT Austin, Graduate Research Assistant	*Austin, TX*
Summer 2022	**Meta AI,** Research Intern	*New York, NY*
Winter 2019	**360World,** AR/VR Developer Intern	*Budapest, Hungary*
Summer 2019	**Sony Corporation,** Research Engineer Intern	*Kanagawa, Japan*
Summer 2018	**National University of Singapore,** Research Intern	*Singapore*
	Google Summer of Code, Developer	*Remote*

Research Publications

Preprints

1. **K. Ashutosh**, R. Girdhar, L. Torresani, and K. Grauman, "What you say is what you show: Visual narration detection in instructional videos," 2023. arXiv: 2301.02307 [cs.CV].

Conference Proceedings

1. **K. Ashutosh**, Z. Xue, T. Nagarajan, and K. Grauman, "Detours for Navigating Instructional Videos," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2024, **Highlight paper (Top 2.8%)** .
2. C. Chen, **K. Ashutosh**, R. Girdhar, D. Harwath, and K. Grauman, "Discovering sounding actions in video with multimodal consensus," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2024.
3. K. Grauman, A. Westbury, L. Torresani, *et al.*, "Ego-exo4d: Understanding skilled human activity from first- and third-person perspectives," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2024, **Oral paper (Top 0.8%)** .
4. Z. Xue, **K. Ashutosh**, and K. Grauman, "Learning object state changes in videos: An open-world perspective," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2024, .
5. **K. Ashutosh**, S. Ramakrishnan, T. Afouras, and K. Grauman, "Video-mined task graphs for keystep recognition in instructional videos," in *Advances in Neural Information Processing Systems (NeurIPS)*, 2023, .

6. **K. Ashutosh**, R. Girdhar, L. Torresani, and K. Grauman, "HierVL: Learning Hierarchical Video-Language Embeddings," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2023, **Highlight paper (Top 2.5%)** .
7. A. Jaiswal, **K. Ashutosh**, J. F. Rousseau, Y. Peng, Z. Wang, and Y. Ding, "RoS-KD: A Robust Stochastic Knowledge Distillation Approach for Noisy Medical Imaging," in *2022 IEEE International Conference on Data Mining (ICDM)*, Dec. 2022, .
8. **K. Ashutosh**, S. Kumar, and S. Chaudhuri, "3D-NVS: A 3D Supervision Approach for Next View Selection," in *2022 26th International Conference on Pattern Recognition (ICPR)*, Aug. 2022, .
9. **K. Ashutosh**, J. Nair, A. Kagrecha, and K. Jagannathan, "Bandit algorithms: Letting go of logarithmic regret for statistical robustness," in *Proceedings of The 24th International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2021, **Oral presentation (Top 3%)** .
10. **K. Ashutosh**, "Hardware performance analysis of mobile-based augmented reality systems," in *2020 International Conference on Computational Performance Evaluation (ComPE)*, 2020, .
11. **K. Ashutosh**, S. Consul, B. Dedhia, P. Khirwadkar, S. Shah, and S. Kalyanakrishnan, "Lower bounds for policy iteration on multi-action mdps," in *2020 59th IEEE Conference on Decision and Control (CDC)*, 2020, .
12. R. Bose, **K. Ashutosh**, J. Li, A. Dragomir, N. Thakor, and A. Bezerianos, "A multilayer network approach for studying creative ideation from eeg," in *Brain Informatics*, Springer International Publishing, 2018, .

Professional Service

Reviewer

- 2024, 2022 — The IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)
- 2023 — The IEEE/CVF International Conference on Computer Vision (ICCV)
- 2023, 2024 — The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)
- 2022,2024 — European Conference on Computer Vision (ECCV)

Teaching Assistant

- Spring 2021 — *Matrix Computations* in Electrical Engineering, IIT Bombay
- Autumn 2020 — *Applied Linear Algebra* in Electrical Engineering, IIT Bombay

Responsibilities

- 2019 – 2020 — Department Academic Mentor Coordinator in Electrical Engineering, IIT Bombay
- 2018 – 2021 — Institute and Department Academic Mentor, IIT Bombay
- 2017 – 2018 — Convener of *Web n Coding Club*, IIT Bombay

Open Source

- 2023 — Contributed to PyTorch codebase
- Open sourced the implementation of our CVPR 2023 paper (HierVL):
- 2017 — Contributed 2k+ lines of code to scikit-learn, a popular ML package

Awards and Achievements

- 2023 Professional Development Award by UT Austin to attend NeurIPS 2023
- Professional Development Award by UT Austin to attend CVPR 2023
- 2020 Department Color by IIT Bombay for valuable contribution to the mentorship program
- 2017 Invited to the Republic Day Parade as a guest of the Hon'ble Prime Minister of India
- 2016 Rashtrapati Puraskar (President's Award) by the Hon'ble President of India for Scouting
- 99.97 (out of 1.2M) and 99.14 percentile (out of 0.15M) in JEE Mains and Advanced
- 2015 Qualified Indian National Mathematical Olympiad and attended selection camp for IMO
- Cleared NTSE and KVPY scholarship exams organized by the Govt. of India

Press Coverage

- 2023 Meta AI's coverage of our CVPR 2023 paper : , , ,

Talks

- 2024 Invited talk at IIT Delhi in Jan titled "Long-video understanding with text supervision".
- 2023 Highlight presentation of our paper at CVPR 2023
- Invited talk at International Workshop on Large Scale Holistic Video Understanding, CVPR 2023
- 2021 Oral presentation of our work at AISTATS 2021
- 2020 Invited Talk on Augmented Reality Applications at Electronics and Robotics Club, IIT Bombay

Technical Skills

- Languages: Python, C++, C, HTML, CSS, LaTeX
- ML Tools: Huggingface, Deepspeed, Fairseq, SLURM, PyTorch, Tensorflow, Git
- Development: React, Jekyll, Android Studio, Xcode, Unity

Extracurricular activities

- Sports: Football (Soccer), Squash, Cricket, Tennis, Badminton
- Activities: Hiking, Running
- Music: Guitar, Piano/Keyboard