Utkarsh Mall

Assistant Professor of Computer Vision, MBZUAI

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Academic Appointments

Mohamed bin Zayed University of Artificial Intelligence *2025-Present*
Tenure-track Assistant Professor of Computer Vision

Columbia University *2023-2025*
Postdoctoral Research Scientist in Computer Science
Advisor: Carl Vondrick

Education

Cornell University *2017-2023*
M.S. and Ph.D. in Computer Science
with a minor in Cognitive Science
Thesis: Visual Discovery from Spatio-Temporal Imagery
Advisors: Kavita Bala and Bharath Hariharan

Indian Institute of Technology Bombay *2013-2017*
B.Tech with Honors in Computer Science and Engineering
with a minor in Biosciences and Bioengineering
Thesis: Motion Generation and Cleaning with Recurrent Frameworks
Advisor: Siddhartha Chaudhuri

Research Interests

My research lies primarily in computer vision. *I build computer vision and machine learning tools to enable automatic scientific discovery from large-scale data. My research builds foundational vision models for expert domains, in an annotation-efficient manner. My research also improves these foundational models to make them more suitable for scientific applications, by improving several aspects like interpretability or better uncertainty estimation primarily via neuro-symbolic methods. In interdisciplinary collaboration with domain experts, from climate scientists and crop scientists to fashion anthropologists, I also apply these methods to a diverse set of real-world scientific problems.*

Key Publications

DiSciPLE: Learning Interpretable Programs for Scientific Visual Discovery
Utkarsh Mall, Cheng Perng Phoo, Mia Chiquier, Bharath Hariharan, Kavita Bala, Carl Vondrick
Computer Vision and Pattern Recognition (CVPR), 2025

Remote Sensing Vision-Language Foundation Models without Annotations via Ground Remote Alignment
Utkarsh Mall, Cheng Perng Phoo, Meilin Kelsey Liu, Carl Vondrick, Bharath Hariharan, Kavita Bala
International Conference on Learning Representations (ICLR), 2024

GeoStyle: Discovering Fashion Trends and Events
Utkarsh Mall, Kevin Matzen, Bharath Hariharan, Noah Snavely, Kavita Bala
International Conference on Computer Vision (ICCV), 2019

Change-Aware Contrastive Learning for Satellite Images
Utkarsh Mall, Bharath Hariharan, Kavita Bala
Computer Vision and Pattern Recognition (CVPR), 2023

All Publications

Google Scholar: https://scholar.google.com/citations?user=AK0AFWwAAAAJ

1. Flat-Pack Bench: Evaluating Spatio-Temporal Understanding in Large Vision-Language Models through Furniture Assembly

Aditya Chetan, Eric Cai, Peeyush Kushwaha, Bharath Raj Nagoor Kani, **Utkarsh Mall**, Qianqian Wang, Noah Snavely, Bharath Hariharan
Under Submission to CVPR, 2026

2. MONITRS: Multimodal Observations of Natural Incidents Through Remote Sensing

Shreelekha Revankar, **Utkarsh Mall**, Cheng Perng Phoo, Kavita Bala, Bharath Hariharan
NeurIPS Datasets and Benchmarks Track, ***Spotlight***, 2025

3. Towards LLM Agents for Earth Observation

Chia-Hsiang Kao, Wenting Zhao, Shreelekha Revankar, Samuel Speas, Snehal Bhagat, Rajeev Datta, Cheng Perng Phoo, **Utkarsh Mall**, Carl Vondrick, Kavita Bala, Bharath Hariharan
TerraBytes Workshop at ICML, 2025

4. DiSciPLE: Learning Interpretable Programs for Scientific Visual Discovery

Utkarsh Mall, Cheng Perng Phoo, Mia Chiquier, Bharath Hariharan, Kavita Bala, Carl Vondrick
CVPR, 2025

5. Scale-aware Recognition in Satellite Images under Resource Constraint

Shreelekha Revankar, Cheng Perng Phoo, **Utkarsh Mall**, Bharath Hariharan, Kavita Bala
ICLR, 2025

6. Remote Sensing Vision-Language Foundation Models without Annotations via Ground Remote Alignment

Utkarsh Mall, Cheng Perng Phoo, Meilin Kelsey Liu, Carl Vondrick, Bharath Hariharan, Kavita Bala
International Conference on Learning Representations (ICLR), 2024

7. AllClear: A Comprehensive Dataset and Benchmark for Cloud Removal in Satellite Imagery

Hangyu Zhou, Chia Hsiang Kao, Cheng Perng Phoo, **Utkarsh Mall**, Bharath Hariharan, Kavita Bala
Neural Information Processing Systems (NeurIPS), Datasets and Benchmarks Track, 2024

8. How Video Meetings Change Your Expression

Sumit Sarin, **Utkarsh Mall**, Purva Tendulkar, Carl Vondrick
European Conference on Computer Vision (ECCV), 2024

9. Evolving Interpretable Visual Classifiers with Large Language Models

Mia Chiquier, **Utkarsh Mall**, Carl Vondrick
European Conference on Computer Vision (ECCV), 2024

10. Miracle: An online, explainable multimodal interactive concept learning system

Ansel Blume, Khanh Duy Nguyen, Zhenhailong Wang, Yangyi Chen, Michal Shlapentokh-Rothman, Xiaomeng Jin, Jeonghwan Kim, Zhen Zhu, Jiateng Liu, Kuan-Hao Huang, Mankeerat Sidhu, Xuanming Zhang, Vivian Liu, Raunak Sinha, Te-Lin Wu, Abhay Zala, Elias Stengel-Eskin, Da Yin, Yao Xiao, **Utkarsh Mall**, Zhou Yu, Kai-Wei Chang, Camille Cobb, Karrie Karahalios, Lydia Chilton, Mohit Bansal, Nanyun Peng, Carl Vondrick, Derek Hoiem, Heng Ji
ACM Multimedia, 2024

11. Change-Aware Contrastive Learning for Satellite Images

Utkarsh Mall, Bharath Hariharan, Kavita Bala
Computer Vision and Pattern Recognition (CVPR), 2023

12. Change Event Dataset for Discovery from Spatio-temporal Remote Sensing Imagery

Utkarsh Mall, Bharath Hariharan, Kavita Bala
Neural Information Processing Systems (NeurIPS), Datasets and Benchmarks Track, ***Spotlight***, 2022

13. Zero-shot Learning Using Multimodal Descriptions
Utkarsh Mall, Bharath Hariharan, Kavita Bala
CVPR Workshop on Learning with Limited Labelled Data for Image and Video Understanding, 2022

14. Discovering Underground Maps from Fashion
Utkarsh Mall, Kavita Bala, Tamara Berg, Kristen Grauman
Winter Conference on Applications of Computer Vision (WACV), 2022

15. Field-Guide-Inspired Zero-Shot Learning
Utkarsh Mall, Bharath Hariharan, Kavita Bala
International Conference on Computer Vision (ICCV), 2021

16. PiCIE: Unsupervised Semantic Segmentation using Invariance and Equivariance in Clustering
Jang Hyun Cho, **Utkarsh Mall**, Kavita Bala, Bharath Hariharan
Computer Vision and Pattern Recognition (CVPR), 2021

17. GeoStyle: Discovering Fashion Trends and Events
Utkarsh Mall, Kevin Matzen, Bharath Hariharan, Noah Snavely, Kavita Bala
International Conference on Computer Vision (ICCV), 2019

18. Batch-Switching Policy Iteration
Shivaram Kalyanakrishnan, **Utkarsh Mall**, Ritish Goyal
International Joint Conference on Artificial Intelligence (IJCAI), 2016

Inter-disciplinary Publications and Technical Reports

19. How physical neighborhood features drive differences in health impacts of tropical cyclones
Utkarsh Mall, Carl Vondrick, Marianthi Anna Kioumourtzoglou, Robbie M Parks
ISEE Conference Abstracts, 2024

20. Computing colorism: skin tone in online retail imagery
Chelsea Butkowski, Lee Humphreys, **Utkarsh Mall**
Visual Communication, 2022

21. ML for Tracking Fashion Trends: Documenting the Frequency of the Baseball Cap on Social Media and the Runway
Rachel Rose Getman, Denise Nicole Green, Kavita Bala, **Utkarsh Mall**, Nehal Rawat, Sonia Appasamy, Bharath Hariharan
Clothing and Textiles Research Journal, June 2020

22. Studying the Effect of Spatial Distribution of Dynein Motors
Hanumant Pratap Singh, Anjneya Takshak, **Utkarsh Mall**, Ambarish Kunwar
International Journal of Modern Physics C (IJMPC) 2016

23. A Deep Recurrent Framework for Cleaning Motion Capture Data
Utkarsh Mall, G. Roshan Lal, Siddhartha Chaudhuri, Parag Chaudhuri
ArXiv Preprint, 2017

External Service

Workshop Organizer

- CV4Science: Using Computer Vision for the Sciences, hosted at CVPR *2025-26*
- Oral Session Organizer, AGU Fall Meeting on Transforming Natural Hazard Monitoring Using AI *2024*

Area Chair

- CVPR *2026*
- ICLR *2026*

Reviewer

- CVPR: ***Outstanding*** Reviewer in 2021, Emergency Reviewer from 20-24 *2020-25*
- ICCV: Emergency Reviewer in 2021 *2019-25*
- 3DV: Emergency Reviewer in 2021 *2020-24*
- ECCV: Emergency Reviewer in 2020-24 *2020-24*
- WACV: Emergency Reviewer in 2023 *2200-25*
- NeurIPS *2020-25*
- ICLR *2020-24*
- ACCV *2020-22*
- Machine Vision Applications (MVA) *2021*
- AAAI *2019*
- SIGGRAPH *2019*

Workshop Reviewer

- Workshop on Computer Vision for Fashion, Art, and Design (at CVPR) *2021-23*
- Workshop on Learning with Limited Labelled Data for Image and Video Understanding (at CVPR) *2022*
- International Workshop and Challenge on People Analysis (at ECCV) *2022*

Invited Journal Reviewer

- IEEE Transactions on Multimedia *2020*
- ISPRS Journal of Photogrammetry and Remote Sensing *2023*
- Remote Sensing and Environment *2025*
- IEEE Geoscience and Remote Sensing Magazine *2025*
- IEEE Transactions on Image Processing *2025*
- PLOS One *2025*

DEI Travel Grant Reviewer

- ECCV *2024*

Service to Institution and Department

Admissions Committee

- Member, Computer Vision, MBZUAI *2026*
- Reviewer, Computer Science, Cornell University *2021-23*

Invited Talks

Ashoka University	*Visual Discovery for Science*	*Nov, 2025*
IIIT Delhi	*Visual Discovery for Science*	*Nov, 2025*
Global AI for Agricultural Advisory Hub	*Computer Vision for Agriculture*	*Aug, 2025*
Salesforce AI	*Visual Discovery for Science*	*June, 2025*
MBZUAI	*Visual Discovery for Science*	*May, 2025*
IIT Delhi	*Visual Discovery for Science*	*Mar, 2025*
AAAI Workshop on Imageomics	***Keynote**: Learning Interpretable Programs for Visual Discovery in Science*	*Mar, 2025*
NYU AI Summer School	*Planet-Scale Discovery with Computer Vision*	*Jun, 2024*
The New York Times	*Remote Sensing Vision Language Models without Textual Annotations*	*May, 2024*
UIUC	*Visual Discovery from Spatio-Temporal Imagery*	*Sep, 2023*

TCS Tech Summit	*Discovering Events from Satellite Images*	*June, 2023*
Columbia University	*Visual Discovery from Spatio-Temporal Imagery*	*Feb, 2023*
UC Berkeley	*Visual Discovery from Spatio-Temporal Imagery*	*Mar, 2023*
Cognitive Science at Cornell Univerity	*Field-Guide-Inspired Zero-Shot Learning*	*Mar, 2022*
Pinterest Inc.	*Discovering Events, Trends, and Neighborhood Maps with Fashion*	*Feb, 2022*

Teaching Experience

Guest Lectures

MBZUAI	*Humans and Computer Vision*	*Oct, 2025*
Columbia University	*Frontiers of Computer Vision*	*Mar, 2025*
NYU	*Computer Vision in AI Summer School*	*Jun, 2024*
Columbia University	*Advanced Computer Vision*	*Apr, 2024*

Teaching Assistant Positions

CS 5670: Introduction to Computer Vision — *Cornell University*
TA for Noah Snavely — *Spring 2018*
Awarded ***Outstanding TA.***

CS 1620: Visual Imaging in the Electronic Age — *Cornell University*
TA for Don Greenberg — *Fall 2017*

CS 475/675: Computer Graphics — *IIT Bombay*
TA for Siddhartha Chaudhuri — *Fall 2016*

BB 101: Introduction to Biology — *IIT Bombay*
TA for Ambarish Kunwar, Ranjith Padinhateeri — *Fall 2014, Spring 2017*

Awards and Honors

- Spotlight Papers at NeurIPS — *2022, 2025*
- Invited Keynote at AAAI workshop on Imageomics — *2025*
- PhD Thesis selected to Doctoral Consortium — *CVPR 2023, WACV 2022*
- Outstanding TA Award, Cornell University — *2018*
- Cornell Graduate Student Travel Grant — *2019, 2022*
- Cognitive Science Conference Grant — *2022*
- Gold Medalist at Indian National Physics Olympiad — *2013*
- Ranked 1st Regionally and 18th Nationally at Junior Mathematics Olympiad. — *2011*

Press Coverage

TechXplore	*AI tool detects global fashion trends*	*2019*
Cornell Chronicle	*'Underground maps' segment cities using fashion, AI*	*2022*
Cornell Chronicle	*Online retail images reveal skin tone discrepancies*	*2022*

Visiting Positions

Research Intern at Facebook AI Research: Hosted by Kristen Grauman — *Summer and Fall 2020*
Summer Analyst at Goldman Sachs Group, Inc. — *Summer 2016*
Software Intern at Jeevomics Pvt. Ltd. — *Winter 2014*

Grant Writing

Grants Submitted

Amazon	*$100,000*	*Spatiotemporally Grounded Multimodal Models via an Explicit Fact Store*	*2025*
Google	*$5,000*	*Improving Geo-Specificity in Question Answering with AlphaEarth*	*2025*
AIAI (MBZUAI Internal)	*$500,000*	*Time- and Geo-Specific AI for Agricultural Advisory and Diagnostic Applications*	*2025*

Grants Assisted

NSF Medium	*$500,000*	*Programmatic Foundation Models for Visual Analysis on a Planetary Scale*	*2024*
NSF ACED	*$160,000*	*Planet-scale AI for accelerating environmental science - Invasive species and beyond*	*2025*

Student Supervision

Current Students

Ahmad Luthfi	*Master's*	*Unsupervised Segmentation*	*2025-Present*
Shamma Yaqoob	*Master's*	*Incorporating Weather in Remote Sensing*	*2025-Present*
Karim Mahfouz	*Master's*	*Self-supervised Learning*	*2025-Present*
Fazli Imam	*Researcher*	*Few-shot Adaptation in Remote Sensing*	*2025-Present*
Hosam Elgendy	*Researcher*	*Analysis-by-synthesis of Indicators*	*2025-Present*

Students Mentored as a PhD & Postdoc

Lekha Revankar	*PhD*	*Scale-Aware Recognition in Remote Sensing*	*2023-Present*
Rajeev Datta	*PhD*	*Change Event Recognition*	*2024-Present*
Chai-Hsiang Kao	*PhD*	*Remote Sensing Question Answering Agents*	*2024*
Sumit Sarin	*Master's*	*Interpretability via Translation*	*2023-2024*
Madhav Aggarwal	*Master's*	*Disaster Event Detection*	*2023-2024*
Naveen Reddy	*Master's*	*Compositional Image Embeddings*	*2024*
Snehal Bhagat	*Master's*	*Efficient Change Event Detection*	*2024*
Selina Xiao	*Undergraduate*	*Generalization of Remote Sensing VLMs*	*2024*
Jenny Jin	*Undergraduate*	*Generalization of Remote Sensing VLMs*	*2024*
Hangyu Zhou	*Undergraduate*	*Cloud Detection and Removal*	*2021-2024*
Aaron Yagnik	*Undergraduate*	*VLM for LandSat Imagery*	*2024*
Vipin Gunda	*Undergraduate*	*User Interface for Satellite Image Search*	*2024*
Anant Shyam	*Undergraduate*	*VLM for LandSat Imagery*	*2024*
JT Klenke	*Undergraduate*	*Open-Vocabulary Segmentation*	*2024*
Arjun Mehta	*Undergraduate*	*Open-Vocabulary Segmentation*	*2024*
Kelsey Liu	*Undergraduate*	*Benchmarks for Remote Sensing Recognition*	*2023*
Brandon Kates	*Undergraduate*	*Efficient Segmentation Annotation Tool*	*2019*
Jang-Hyun Cho	*Undergraduate*	*Unsupervised Segmentation*	*2019-2021*
Hadi Alzayer	*Undergraduate*	*Action Inference from Place*	*2019-2022*
Rachel Getman	*Master's*	*Tracking Fine-Grained Fashion Trends*	*2018-2019*
Sonia Appasamy	*Undergraduate*	*Efficient Recognition Annotation Tool*	*2018-2019*
Nehal Rawat	*Undergraduate*	*Efficient Recognition Annotation Tool*	*2018-2019*
Victoria Mao	*Undergraduate*	*Domain Adaptation*	*2018*
Arun Pidugu	*Undergraduate*	*Dataset for Fashion in Art*	*2018*
Rohit Bandaru	*Undergraduate*	*Dataset for Fashion in Art*	*2018*
Dostonbek Nazirzhonov	*High School*	*Plant Disease Detection*	*2024-Present*

Students Thesis Committees

Jose Viera	*PhD*	*Examiner (Advisor: Hisham Cholakkal)*	*2025*