# Utkarsh Mall

Postdoctoral Research Scientist, Columbia University

*530 West 120th St, 616 CEPSR, New York, NY, USA 10027*

(+1) 607-379-8106 | um2171@columbia.edu | www.cs.columbia.edu/~utkarshm

## Education

**Cornell University** *2017-2023*
M.S. and Ph.D. in Computer Science, GPA 3.9
Advisors: Kavita Bala and Bharath Hariharan

**Indian Institute of Technology Bombay** *2013-2017*
B.Tech with Honors in Computer Science and Engineering, Grade 9.1/10
Advisors: Siddhartha Chaudhuri and Parag Chaudhuri

## Research Interests

*My research lies in computer vision. I focus on building recognition models that can learn with little to no supervision and using these models to make discoveries from visual data. I have applied this work to a range of application domains from fashion to satellite images.*

## Publications

### 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

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

### 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 **(Featured)**, 2022

### 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

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

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

### 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

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

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

## *Inter-disciplinary Publications and Pre-prints*

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

### 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

### 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

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

# Academic Service

### Reviewer

- Computer Vision and Pattern Recognition (CVPR): **Outstanding** Reviewer in 2021, Emergency Reviewer in 2021, 22, and 23 *2020, 2021, 2022, 2023*
- International Conference on Computer Vision (ICCV): Emergency Reviewer in 2021 *2019, 2021*
- International Conference on 3D Vision (3DV): Emergency Reviewer in 2021 *2020, 2021, 2022*
- European Conference on Computer Vision (ECCV): Emergency Reviewer in 2022 *2020, 2022*
- Winter Conference on Applications of Computer Vision (WACV): Emergency Reviewer in 2023 *2020, 2021, 2022, 2023*
- Neural Information Processing Systems (NeurIPS) *2022*
- Asian Conference on Computer Vision (ACCV) *2020, 2022*
- Machine Vision Applications (MVA) *2021*
- Association for the Advancement of Artificial Intelligence (AAAI) *2019*

### Workshop Reviewer

- Workshop on Computer Vision for Fashion, Art, and Design (at CVPR) *2021, 2022, 2023*
- Workshop on Learning with Limited Labelled Data for Image and Video Understanding (at CVPR) *2022, 2023*
- International Workshop and Challenge on People Analysis (at ECCV) *2022*

### Invited Journal Reviewer

- IEEE Transactions on Multimedia *2020*

### Ph.D. Application Reviewer

- Computer Science, Cornell Univeristy *2022, 2023*

# Invited Talks

**Machine Learning Lunch** *Pinterest Inc.*
*Discovering Events, Trends, and Neighborhood Maps with Fashion* *Feb, 2022*

**Grad Student Lunch** *Cognitive Science at Cornell Univerity*
*Field-Guide-Inspired Zero-Shot Learning* *Mar, 2022*
**Vision Group Meeting** *Columbia University*
*Visual Discovery from Spatio-Temporal Imagery* *Feb, 2023*
**Vision Group Meeting** *UC Berkeley*
*Visual Discovery from Spatio-Temporal Imagery* *Mar, 2023*

## Teaching Experience

**CS 5670: Introduction to Computer Vision** *Cornell Univerisity*
*Teaching Assistant for Noah Snavely* *Spring 2018*
Awarded **Outstanding TA.**
**CS 1620: Visual Imaging in the Electronic Age** *Cornell Univerisity*
*Teaching Assistant for Don Greenberg* *Fall 2017*
**CS 475/675: Computer Graphics** *IIT Bombay*
*Teaching Assistant for Siddhartha Chaudhuri* *Fall 2016*
**BB 101: Introduction to Biology** *IIT Bombay*
*Teaching Assistant for Ambarish Kunwar, Ranjith Padinhateeri* *Fall 2014, Spring 2017*

## Awards and Honors

- Cornell Graduate Student Travel Grant *2019, 2022*
- Cognitive Science Conference Grant *2022*
- Outstanding TA Award, Cornell University *2018*
- Gold Medalist at Indian National Physics Olympiad *2013*
- Ranked 1st Regionally and 18th Nationally at Junior Mathematics Olympiad. *2011*

## Work Experience

**Discovering Underground Maps from Fashion** *Facebook AI Research*
Kristen Grauman *Summer and Fall 2020*
Developed a novel technique to discover underground neighborhood maps from clothing styles in social media images. Also introduced two non-visual benchmarks that capture the underground neighborhood notion of 37 worldwide cities, Introduced methods to discover meaningful insights (e.g., uniqueness, analogies, historical expansion) from the produced underground maps.

**Rule-Based Health Monitoring System** *Goldman Sachs Group, Inc.*
Sachindra Nath *Summer 2016*
Designed and Implemented a Rule Engine, allowing monitoring of running hosts, processes, and applications. The rule engine sends alerts about the health of the system, based on the rules matching with incoming telemetry data. Built REST endpoints and designed a web user interface on top of it, allowing users to manage rules.

**Data Visualization Web Applications** *Jeevomics Pvt. Ltd.*
Ankit Malik *Winter 2014*
Developed web services to generate dynamic visualizations from diabetes diagnosis data. Used Google maps API and D3 to create the web application using a python-flask back end. Used a regularized regression model to fit data and find useful relations between metabolites concentration.

## Skills

**Programming Languages**: Python, C/C++, Java, Prolog, OCaml, R, Matlab
**Web/Application Development**: Python-Flask, Angular, Drools, Mongo, SQL
**Machine Learning**: Tensorflow, PyTorch, PyTorch-lightning