

KAMAL GUPTA

College Park, Maryland, USA

voice: (1)475-228-4317 · email: kampta@cs.umd.edu · web: <https://kampta.github.io>

RESEARCH INTERESTS

My long-term goal is to build intelligent agents that can *see* (through vision, audio, and other senses), *interact* (navigate and act in an environment), and *reason* (plan long-term actions from sparse rewards).

EDUCATION

University of Maryland, College Park

Aug. 2018 - May 2023

Ph.D. in Computer Science (4.0/4.0), Kulkarni fellow, Dean's fellow, Outstanding GRA Award

Advisors: Abhinav Shrivastava, Larry Davis

Thesis: Learning and Composing Primitives for the Visual World

Indian Institute of Technology Delhi

Aug. 2007 - Dec. 2012

Bachelors + Masters in Electrical Engineering (8.6/10.0)

Advisor: Sanjiv Singh (Carnegie Mellon University)

Thesis: Pose Estimation for a Micro-Aerial Vehicle in GPS-denied environments

SELECTED PUBLICATIONS AND PATENTS

Visit Google Scholar [tC3td8cAAAAJ](https://scholar.google.com/citations?user=tC3td8cAAAAJ) for the complete list (* denotes equal contribution)

- SHACIRA: Scalable HAsH-grid Compression for Implicit Neural Representations *ICCV 2023* [[web](#), [code](#)]
S. Girish, A. Shrivastava, **K. Gupta**
- Chop & Learn: Recognizing and Generating Object-State Compositions *ICCV 2023* [[web](#), [code](#)]
N. Saini, H. Wang, A. Swaminathan, V. Jayasundara, B. He, **K. Gupta**, A. Shrivastava
- ASIC: Aligning Sparse in-the-wild Image Collections *ICCV 2023* [[web](#), [code](#)]
K. Gupta, V. Jampani, C. Esteves, A. Shrivastava, A. Makadia, N. Snaveley, A. Kar
- Teaching Matters: Investigating the Role of Supervision in Vision Transformers *CVPR 2023* [[web](#), [code](#)]
M. Walmer*, S. Suri*, **K. Gupta**, A. Shrivastava
- LilNetX: Lightweight Networks with EXtreme Compression & Structured Sparsification *ICLR 2023* [[web](#), [code](#)]
S. Girish, **K. Gupta**, S. Singh, A. Shrivastava
- Neural Space-Filling Curves *ECCV 2022* [[web](#), [code](#)]
H. Wang, **K. Gupta**, L. Davis, A. Shrivastava
- PatchGame: Learning to Signal Mid-level Patches in Referential Games *NeurIPS 2021* [[web](#), [code](#)]
K. Gupta, G. Somepalli, Anubhav, V. Jayasundara, M. Zwicker, A. Shrivastava
- LayoutTransformer: Layout Generation and Completion with Self-attention *ICCV 2021* [[web](#), [code](#)]
K. Gupta, J. Lazarow, A. Achille, L. Davis, V. Mahadevan, A. Shrivastava
- The Lottery Ticket Hypothesis for Object Recognition *CVPR 2021* [[web](#), [code](#)]
S. Girish*, S. Maiya*, **K. Gupta**, H. Chen, L. Davis, A. Shrivastava
- Improved Modeling of 3D Shapes with Multi-view Depth Maps *3DV 2020* [[web](#), [code](#)]
K. Gupta*, S. Reddy*, K. Shah*, A. Shrivastava, M. Zwicker
- PatchVAE: Learning Local Latent Codes for Recognition *CVPR 2020* [[web](#), [code](#)]
K. Gupta, S. Singh, A. Shrivastava
- Applying Multi-Dimensional Variables to Determine Fraud *USPTO 16/426826*, 2019
K. Gupta, V. Jain
- Systems and methods for Updating Fraud Detection Variable *USPTO 15/258880*, 2018
K. Gupta, V. Jain
- Systems and methods for customized real time data delivery *USPTO 14/961614*, 2015
S. Sanyal, S. Purkayastha, T. Choudhuri, A. Choudhary, V. Grover, M. Naeem, P. Mehta, **K. Gupta**, A. Agarwal

WORK EXPERIENCE

[Tesla Bot \(Optimus\)](#)

May 2023 –

Senior Machine Learning Scientist

Palo Alto, CA

- Teaching humanoid robots to do anything

[Google Research](#)

May 2022 – Aug. 2022

Research Intern

San Francisco, CA

- 3D object reconstruction from in-the-wild Image Collections

NVIDIA AI

Research Intern

May 2021 – Aug. 2021
Santa Clara, CA (Remote)

- Generative modeling of textured meshes

Amazon AWS

Research Intern ([web](#))

May 2019 – Aug. 2019
Pasadena, CA

- Generative modeling of layouts for diverse domains such as 3D objects, Wireframes, Documents, etc.

NetraDyne

Staff Research Engineer

Mar. 2017 – Aug. 2018
Bengaluru, India

Netradyne provides ADAS devices for commercial vehicles. Led a team of 4 to ship

- Distracted (texting, eating, drinking etc.) + drowsy driving detection pipeline for driver safety
- DriverI Fleet Safety and Coaching Platform to ingest and analyze millions of driving miles

Poolka Technologies

Cofounder, CTO

Apr. 2016 – Feb. 2017
Bengaluru, India

- Built **Fairi**, a fashion assistant chatbot that provides clothing recommendations based on social media trends and users' existing wardrobe. (Pose estimation, Clothing segmentation, Graph Convolutions, Language Models)
- Selected for **Microsoft Bizspark** and **IBM Global Entrepreneur** Program (>\$20000 cloud credits per year)

Big Data Labs, American Express

Research Engineer, Risk & Information Management

July 2013 – Mar. 2016
Bengaluru, India

- Large scale recommendation systems, Geometric deep learning on financial data.
- **Platinum Genius Medal** - Systems and methods for customized real time data delivery Dec. 2015
- **Trainer of the Quarter** - Hadoop course for >200 AmEx employees in NYC, Gurgaon, Bangalore Dec. 2014
- IMS Hackathon (Winner 2015, Runner-up 2014), RIM InnoVision Challenge (Runner-up 2013) 2013-2015

Robotics Institute, Carnegie Mellon University

Research Intern

June 2011 – June 2012
Pittsburgh, PA

- Developed an approach to predict vineyard yields automatically and non-destructively with cameras ([web](#))
- Estimated global pose of MAV using stereo visual odometry fused with infrequent GPS measurements ([web](#))

Industrial Technology Research Institute (ITRI Taiwan)

Research Intern

May 2010 – July 2010
Hsinchu, Taiwan

- Designed an (SVM based) algorithm for detection of multiple vehicles in dim light for autonomous cars

VOLUNTEER/DEI INITIATIVES

- **Graduate Student Mentor:** [CVPR Academy](#) for first-time CVPR attendees 2022
- **Organizer:** Co-running [SIGGRAPH RCDC](#) mentorship program for Graphics graduate school applicants 2021-
- **Instructor:** [AI4ALL](#) summer program for high school students 2020
- **Reviewer:** Computer Graphics - SIGGRAPH 2022, SIGGRAPH Asia 2023. Computer Vision - ECCV 2022. CVPR 2023, 2022*, 2021. ICCV 2021. Machine Learning - NeurIPS 2022, 2023. ICLR 2022. (* denotes Outstanding Reviewer Award)

MISCELLANEOUS

- Outstanding Research Assistant Award by the Graduate School, University of Maryland ([web](#)) 2022
- Outstanding Reviewer, CVPR ([web](#)) 2022
- Kulkarni Research Fellowship ([web](#)) 2020
- Dean's fellowship for outstanding academic achievement 2018-20
- **Talks**
 - Networks Research Group, NICTA: **Exploring location based social discovery networks** May 2013
 - Navigation Group, Robotics Institute, CMU: **Error Modeling in Visual Odometry** May 2012
- **Coordinator:** [Robotics Club](#) IIT Delhi 2008-10
- Master's Research Scholarship by Ministry of Human Resources and Development, Govt. of India May 2011
- CBSE Merit Scholarship for All India Rank 38 (600,000 appeared) in AIEEE 2007
- National top 1% (40,000 appeared) in Physics Olympiad and Chemistry Olympiad 2006
- National Talent Search Exam Scholarship by Govt. of India 2005