

ANUBHAV

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EDUCATION

University of Maryland, College Park, MD

MS, Computer Science, Jan '21-Present

Indian Institute of Technology (IIT), Delhi, India

Bachelor of Technology, Electrical Engineering (Minor: Computer Science), May '10

SKILLS

Programming Languages: (Proficient) Python, SQL
(Intermediate) Golang, C/C++, Javascript, R

EXPERIENCE

Graduate Assistant

Dept. of Computer Science, University of Maryland, College Park, Spring '21 - Present

- Working with Prof. Abhinav Shrivastava on problems in unsupervised learning and open set recognition in computer vision.
- Additionally, TAed for CMSC320: Introduction to Data Science in Spring and Summer semesters of 2021

Data Scientist

Swiggy (BundlTechnologies), Bangalore, India, Sep '20 – Jan '21

- Deep learning-based road network extraction from satellite imagery
- Extracted building footprints at scale from OSM and constructed Point of Interest Polygons
- Work accepted at LocalRec-2021

Senior Research Engineer

Netradyne Technologies, Bangalore, India, Jun '17 – Aug '20

- Object Detection and Recognition
 - Curated the datasets and trained the models from the ground up for different geographies
 - Worked on FasterRCNN, SSD, MobileNets
- Optimization and Engineering – model acceleration and compression for on-device analytics
- Infrastructure Development – Primary developer for analytics video data lake and model evaluation tool

Machine Learning Engineer

Silversparro Technologies, Gurgaon, India, Dec '14 – May '17

- One of the founding members of the company
- Created end-to-end infrastructure for deep learning-based model training and evaluation
- Trained models for core products - OCR and Face Recognition

Business Analyst

Capital One, Bangalore, India, Feb '12 – Aug '12

Analyst

Royal Bank of Scotland, Gurgaon, India, Jun '10 – Jan '12

PROJECTS

PatchGame

University of Maryland, College Park

- Studied a referential game (a type of signaling game) where two agents communicate with each other via a discrete bottleneck to achieve the goal of discovering important image patches
- Proved that it is indeed possible for the two agents to develop a communication protocol without explicit supervision
- Possible applications: speeding up recent Vision Transformers by using only important patches, and as pre-training for downstream recognition tasks

Open World Evaluation

University of Maryland, College Park

- Organized a long term study on a new evaluation paradigm for open-world problems
- Proposed a firewalled system between algorithm developers and dataset creators and studied challenges in setting up such a paradigm
- Work under submission at a computer vision conference

Model Evaluation Tool

Netradyne Technologies, Bangalore, India

- Designed the backend schema and conceptualized the API interface
- Built features to zero-in on systemic faults in the models w.r.t. to particular lighting, weather, or object dynamic and used this to optimize data collection effort and set up continuous learning
- Possible applications: assisting scientists to see failure modes in a model, reducing the model churn time, an internal model and data tracking mechanism

Intelligent OCR

Silversparro Technologies, Gurgaon, India

- Trained an RCNN to detect bounding boxes for text segments
- Implemented a combination of CNN, RNN, and CTC for OCR in text segments
- Speeded up the image alignment module from 400ms/image to 20ms/image by using model quantization

PAPERS

- **NeurIPS'21 PatchGame: Learning to Signal Mid-level Patches in Referential Games**
Kamal Gupta, Gowthami Somepalli, Anubhav Gupta, Vinoj Jayasundara, Matthias Zwicker, Abhinav Shrivastava
Available at: <https://arxiv.org/abs/2111.01785>
- **LocalRec'21 Mining Points of Interest via Address Embeddings: An Unsupervised Approach**
Abhinav Ganesan, Anubhav Gupta, Jose Mathew
Available at: <https://arxiv.org/abs/2109.04467>

PATENTS

- **US WO 2019/075341 AI: Detection of driving actions that mitigate risk**

WORKSHOPS

- **Dealing With Novelty in the Open Worlds, WACV 2022, Hawaii:** Co-organizer