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 Dr. Abhinav Shrivastava on problems in unsupervised learning 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

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

- Implemented an RCNN to detect bounding boxes for text segments
- Implemented a combination of CNN, RNN, and CTC for OCR in text segments
- Improved accuracy of predictions by passing them through an SVM
- 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
  Preprint 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
  Preprint available at: https://arxiv.org/abs/2109.04467

PATENTS

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

WORKSHOPS

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