Anay Majee

amajee11us.github.io

Email : **anay.majee@utdallas.edu**
Mobile : +1-945-243-1822

Experience

- **Microsoft** — Bangalore, India
  Data and Applied Scientist 2 — *Mar. 2022 - Aug. 2022*
  - **Dense Information Retrieval in Search Advertising**:
    - Developed an Entity Centric Language model to improve identification of products, brands etc. resulting in 12% revenue gain in Search Advertising.
    - Mentored an intern to develop an evaluation framework to benchmark entity centric language models which is used across 3+ teams in Microsoft Advertising.

- **Intel Technologies** — Bangalore, India
  Applied Research Scientist — *Mar. 2020 - Mar.2022*
  - **Few-Shot Road Object Detection**:
    - Leading the development of **Few-Shot Object Detection** (FSOD) and **Few-Shot Incremental Learning** (FSIL) algorithms in ***Pytorch*** for detecting rare or unseen road objects in unconstrained driving environments and collected the first ***Few-Shot India Driving dataset***.
    - Mentored two interns whose work on Few-Shot Object Detection has been submitted to conferences like ICCV and WACV.

- **Intel Technologies** — Bangalore, India
  Deep Learning Research and Development Engineer — *May 2019 - Mar. 2020*
  - **Driver Monitoring System**:
    - End-to-End ***edge-inferencing*** framework to detect driver behavior in ADAS systems by ***facial landmark detection*** and ***gaze estimation*** using ***Intel OpenVINO*** toolkit.
  - **Health AI Workload Profiler**:
    - Developed a performance bench-marking framework for automated ***simulation and profiling*** of health AI workloads in resource constrained scenarios resulting in faster on-boarding of new customer models.

- **Intel Technologies** — Bangalore, India
  Undergraduate Technical Intern — *Dec. 2017 - May 2018*
  - **Multi-Hardware workload Deployment Toolkit**:
    - Developed Edge Inferencing framework to deploy Computer Vision models on multiple edge hardwares including ***Intel Neural Compute Sticks***.
    - Developed an SDK in ***python*** which creates sub-graphs of a neural network, deploys each unit on different hardwares and combines the prediction without performance degradation.

Education

- **The University of Texas at Dallas** — Texas, United States
  PhD in Computer Science — *Aug. 2022 – Present*

- **Vellore Institute of Technology** — Chennai, India
  BTech.in Electrical and Electronics Engineering; *CGPA:* ***9.68/10.0 (Gold Medalist)*** — *Jun. 2014 – May. 2018*

Papers

- **Meta-Guided Metric Learner for Overcoming Class Confusion in FSOD** — NeurIPS-W 2021
  Co-Authors: Dr.Anbumani Subramanian and Kshitij Agrawal — *Oct. 2021*

- **Attention Guided Cosine Margin for Overcoming Class-Imbalance in FSOD** — WACV-W 2022
  Co-Authors: Ashutosh Agarwal, Dr.Anbumani Subramanian and Dr.Chetan Arora — *Oct. 2021*

- **Few-Shot Batch Incremental Road Object Detection via Detector Fusion** — ICCV-W 2021
  Co-Authors: Anuj Tambwekar, Kshitij Agrawal and Dr.Anbumani Subramanian — *Aug. 2021*

- **Few-Shot Learning for Road Object Detection** — AAAI-W 2021
  Co-Authors: Kshitij Agrawal and Dr.Anbumani Subramanian — *Feb. 2021*

- **Learning Distinguishable Feature Representations for FSIL** — Preprint
  Co-Authors: Divya Kothandaraman, Dr.Anbumani Subramanian and Dr.Dinesh Manocha — *Aug. 2021*
- **Enabling Baytrail GPUs for Deep Learning Inferencing on Embedded Hardware** — Intel SWPC 2019
  Co-Authors: Pankaj Rabha — *Dec. 2019*

Other publications in Computer Science and Electrical Engineering are available on my **Google Scholar** profile.

Patents

- **Virtual Electrical Networks** — USPTO
  Co-Authors: Dileep Paruchuri, Pranesh SK and Yashasvi Bhargava — *Dec. 2020*
  - Virtualization of microgrid infrastructures to perform non-invasive identification of faulty nodes and to achieve load balancing for the conservation of energy resources.
- **IoT Based Industrial Energy Monitoring and Control System** — Indian Patent Office
  Dr. Gnana Swathika O.V and Madhav Bhatia — *Under Review, Apr. 2018*
  - Smart Energy monitoring and control infrastructure to collect, analyse and visualize electrical energy utilization data from microgrids to address critical faults without human supervision.

Awards and Recognitions

Division Recognition Award, VSG team, Intel India	One among 45 employees	*2021*
Amur Tiger Re-Identification challenge, ICCV (Pose task)	3rd globally / 10 teams	*2019*
Facebook AI Research Self Supervised Learning Challenge, ICCV	3rd globally / 6 teams	*2019*
Rising Star of the Year, VSG team, Intel India	One among 26 employees	*2019*
Gold Medalist, School of Electrical Engg., VIT University	1^{st} among 800 students	*2018*

Projects

- **Let's Play Football**: Reinforcement learning model developed in ***Pytorch*** based on Proximity Policy Optimization technique (PPO) to train agents in playing football on the ***Google Research Football*** dataset.
- **Tiger Pose Estimation in the Wild**: Implemented a ***pose estimation*** network in ***Pytorch*** based on multi-scale High-Resolution Network (HRNet) to track siberian tigers in the wild.

Services and Volunteering

- **Speaker, Guest Lecture on - Can Machines See Like Humans?** — Nov. 2021
  VIT University, Chennai Campus
  Delivered a guest lecture to undergraduate students on the advancements in computer vision and highlight the importance of interdisciplinary research.
- **Panelist, Ideathon Contest 2021** — Nov. 2021
  VIT University, Chennai Campus
  Part of the experts committee to judge multiple shortlisted ideas created by university students in the fields of Healthcare, agriculture and education.
- **Speaker, Technical Leadership Development Session (Asia Pacific)** — Aug. 2021
  Intel India
  Delivered a talk on Few-Shot Learning for Detection Less-Occuring Road Objects for Driving Systems.
- **Reviewer, British Machine Vision Conference (BMVC)** — Jul. 2021
  Virtual
  Reviewed multiple main track papers on general computer vision tasks.
- **Invited Speaker, EPIC Conference** — Feb. 2020
  Vishakhapattanam, India
  Delivered an invited talk on "Learning to Learn" - A Meta-Learning approach to computer vision tasks.

  Training a group of Intel Engineers on key application areas of Deep Learning.
- **Student Mentor, Intel Science and Engineering Fair** — May 2019
  New-Delhi, India
  Mentored two student groups, representing team India in ISEF.

Skills

- **Languages**: Python, C++, C
- **Software Frameworks**: PyTorch, OpenCV, kubernetes, docker
- **Artificial Intelligence Techniques**: Self-Supervision, Object Detection, Few-Shot Learning, Federated Learning