

## EDUCATION

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- **The University of Texas at Dallas** Texas, United States  
*PhD in Computer Science;* *GPA: 3.71/4.0* *Aug. 2022 – Present*
- **Vellore Institute of Technology** Chennai, India  
*BTech.in Electrical and Electronics Engineering;* *GPA: 9.68/10.0 (Gold Medalist)* *Jun. 2014 – May. 2018*

## EXPERIENCE

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- **Fujitsu Research** California, United States  
*Research Intern* *May. 2024 - Present*
  - **Tabular Graph-Language Multi-Modal Learning:** Developed a *Foundation Model* towards cross-table generalization in tabular data. We achieve this by minimizing the consistency between graph (learnt from a **Graph Transformer** network) and text (learnt from a BART based **Large Language Model** (LLM) encoder) modalities generated from each record in tabular datasets. This work has been submitted to AAAI'25.
- **CARAML Lab, The University of Texas at Dallas** Texas, United States  
*Research Assistant* *Aug. 2022 - Present*
  - **Submodular Combinatorial Representation Learning:** Advised by Prof. Rishabh Iyer towards introducing a paradigm shift in Machine Learning to adopt set-based **Submodular functions as learning objectives** to overcome inter-class bias and intra-class variance (accepted to ICML'24) in **longtail recognition** and **Few-Shot Object Detection** (accepted to ECCV'24), improving performance by upto 7.6% and 5.7% respectively.
  - **Submodular In-Context Learning:** Developed a novel architecture improving **Information Retrieval** performance through **In-Context Learning**, leveraging Submodular Point Processes (SPPs) in LLMs (submitted to EMNLP'24), enforcing quality and diversity among selected embeddings.
- **Microsoft** Bangalore, India  
*Data and Applied Scientist 2* *Mar. 2022 - Aug. 2022*
  - **Dense Information Retrieval in Search Advertising:** Developed an **Entity Centric Large 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* *May. 2018 - Mar.2022*
  - **Few-Shot Road Object Detection:** Led 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**.
  - **OpenVINO Edge-Inferencing Framework:** Developed an End-to-End *edge-inferencing* framework to detect driver behavior in ADAS systems by **facial landmark detection** and **gaze estimation** using **Intel OpenVINO** toolkit.
  - **Student Mentor:** Mentored two interns whose work on Few-Shot Object Detection has been accepted to conferences like ICCV-W'21 and WACV'22.

## NOTABLE PUBLICATIONS

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- **SMILE: Leveraging Submodular Mutual Information for Robust Few-Shot Object Detection** ECCV 2024  
*Anay Majee, Ryan Sharp, Dr. Rishabh K. Iyer* *Jul. 2024*
- **SCoRe: Submodular Combinatorial Representation Learning** ICML 2024  
*Anay Majee, Suraj Kothawade, Krishnateja K., Dr. Rishabh K. Iyer* *May 2024*
- **Attention Guided Cosine Margin for Overcoming Class-Imbalance in FSOD** WACV-W 2022  
*Ashutosh Agarwal, Anay Majee, Dr. Anbumani Subramanian and Dr. Chetan Arora* *Jan. 2022*
- **Meta-Guided Metric Learner for Overcoming Class Confusion in FSOD** NeurIPS-W 2021  
*Anay Majee, Dr. Anbumani Subramanian and Kshitij Agrawal* *Oct. 2021*

- **Few-Shot Batch Incremental Road Object Detection via Detector Fusion** ICCV-W 2021  
*Anuj Tambwekar, Kshitij Agrawal, Anay Majee and Dr.Anbumani Subramanian* Aug. 2021
- **Few-Shot Learning for Road Object Detection** AAAI-W 2021  
*Anay Majee\*, Kshitij Agrawal\* and Dr.Anbumani Subramanian* Feb. 2021
- **Enabling Baytrail GPUs for Deep Learning Inferencing on Embedded Hardware** Intel SWPC 2019  
*Anay Majee, Pankaj Rabha* Dec. 2019

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

## PATENTS

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- **Virtual Electrical Networks** US Patent Office (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* Nov. 2023
  - 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

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

## SERVICES AND VOLUNTEERING

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- **Reviewer: BMVC'21, WACV'22, ICLR'24, WACV'25** Jul. 2021 - Present  
*Virtual*
- **Teaching Assistant, CS 4375 and CS 6375: Machine Learning** Fall 2022, Spring 2024  
*UT Dallas, Richardson, TX*  
Teaching Assistant for the undergraduate Machine Learning Course for a class of 101 students.
- **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.
- **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

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- **Languages:** Python, C++, C
- **Software Frameworks:** PyTorch, OpenCV, kubernetes, docker, HuggingFace
- **Artificial Intelligence Techniques:** Representation Learning, Object Detection, Few-Shot Learning, Federated Learning, Submodular Functions, In-Context Learning