ADITYA ANANTHARAMAN

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Education

Carnegie Mellon University (CMU), School of Computer Science — Pittsburgh, USA
Master of Computational Data Science (MCDS) | *GPA:* 4.11/4.33 — 2019 - 2020

National Institute of Technology Karnataka, Surathkal (NITK) — Surathkal, India
Bachelor of Technology Information Technology | *GPA:* 9.54/10, *Class Rank:* 5/103 — 2015 - 2019

Experience

Applied Scientist II, Amazon — Feb 2021 - Present | London, GB

- Leading the integration of Large Language Models (LLMs) to develop contextual advertising products at Amazon.
- Designed and deployed Mixture of Experts (MoE)-based Behavioral Foundation Models pre-trained on customer behavior tasks to boost click-through rate (CTR) prediction in e-commerce advertisement, achieving a 350x model compression via cross-architecture distillation for deployment in low-latency environments.
- Developed a novel method called Reverse Distillation (RD) that enables training large encoder-based transformer models (upto 50 billion parameters) for noisy tasks like CTR prediction by leveraging knowledge from smaller models.
- Applied LoRA-based parameter-efficient fine-tuning to adapt LLMs for product retrieval and ranking applications.

Applied Scientist Intern, Amazon — May 2020 - Aug 2020 | Seattle, USA

- Developed co-teaching-based and BERT-based models to link context-of-use entities with products to improve search experience. Proposed approaches improved both precision & coverage of links compared to lexical matching.

Research Intern, IIT-Hyderabad — Aug 2018 - Dec 2018 | Hyderabad, India

- Developed a novel multi-space model for Zero-Shot Object Detection (ZSD), achieving a 14% increase in mean average precision (mAP) compared to the state-of-the-art on Pascal VOC.

Software Engineering Intern, Microsoft — May 2018 - July 2018 | Hyderabad, India

- Built a cluster management solution for the Azure Networking team, providing streamlined management, monitoring and usage of test clusters in the team.

Selected Publications

- J Zhang, A Muhamed, **Aditya Anantharaman**, G Wang, C Chen , K Zhong, Q Cui, Y Xu, B Zeng, T Chilimbi, Y Chen *"ReAugKD: Retrieval-Augmented Knowledge Distillation For Pre-trained Language Models"*, ACL 2023 (Oral) [Paper] [Blog]
- M Yang*, **Aditya Anantharaman***, D C Robert*, Z Kitowski* *"Graph Relation Transformer: Incorporating pairwise object features into the Transformer architecture"*, Visual QA Workshop, CVPR 2021 [Paper]
- D Gupta, **Aditya Anantharaman**, N Mamgain, S Kamath, V Balasubramanian, C V Jawahar *"A Multi-Space Approach to Zero-Shot Object Detection"*, WACV 2020 [Paper]
- M Vikram, **Aditya Anantharaman**, Suhas BS, S Kamath, *"An Approach for Multimodal Medical Image Retrieval using Latent Dirichlet Allocation"*, India KDD CoDS-COMAD 2019 (Oral). Short paper at AI for Social Good Workshop, NeurIPS 2018 [Paper] [Poster]

Academic Projects

Graph Relation Transformer for Text Visual Question Answering (Text-VQA) — Paper | Fall 2020

- Proposed a multimodal Graph Relation Transformer which leverages transformer layers for graph attention computation with rich edge and node information for the Text-VQA task.

Fact Extraction and Verification (FEVER shared task) — Github | Spring 2020

- Implemented a BERT-based model with multi-task and multi-hop reasoning enhancements to strengthen the claim verification module which led to a 2% improvement in label accuracy.

Skills

Programming Languages:	Python, C++, C, Java, MySQL
Deep Learning:	PyTorch, TensorFlow, Deepspeed
Cloud Platforms and Tools:	AWS, Azure, Google Cloud Platform, Hadoop MapReduce, PySpark

Academic Service

Reviewer: ACL 2024, EMNLP 2024, ES-FoMo-II Workshop ICML 2024