Aditeya Baral

+1(551)263-8608 | aditeyabaral@nyu.edu | linkedin.com/in/aditeyabaral | aditeyabaral.com | Google Scholar

EDUCATION

New York University, Courant Institute of Mathematical Sciences — New York, NY
Masters in Computer Science; GPA - 3.78/4.00 — *Sep 2024 – Present (Expected May 2026)*
Concentration: Artificial Intelligence
Relevant Courses: NLP/Representation Learning, NLP/Computational Semantics, NLP/Emerging Topics

PES University — Bengaluru, India
Bachelor of Technology in Computer Science & Engineering; GPA - 8.71/10.00 — *Aug 2018 – May 2022*
Specialization: Machine Intelligence & Data Science
Relevant Courses: Discrete Math, Linear Algebra, Intro to Data Science, Data Analytics, Big Data, ML, NLP

EXPERIENCE

Cisco Systems — Bengaluru, India
Applied Researcher, Webex AI — *July 2022 – July 2024*

- ***Instruction fine-tuned*** LLMs like Mistral and Llama-2 on-prem to enable ***secure*** and ***cost-effective*** AI solutions such as ***translation*** and ***RAG*** for engineers and customers, ***cutting*** 3rd ***party dependency costs by 30%.***
- Led the initiative to build a novel ***pre-training algorithm*** for conversational data using **PyTorch** and **HuggingFace**, achieving a **40%** ***performance gain*** over standard approaches at benchmark fine-tuning tasks.
- Developed the **Webex Contextual Search** engine and ***improved searching, ranking, recommendations*** and ***topic modelling*** by **75%** with **<10%** increased overhead latency.
- Integrated OpenAI APIs and **on-prem LLMs** with the Webex AI Assistant for **15M+** worldwide users to add ***auto-replies***, ***summarisation***, ***querying*** and ***action-item extraction*** to message threads and meeting transcripts.

Big Data Analytics Engineering Intern, Webex VideoMesh Analytics and APIs — *Jan 2022 – June 2022*

- Migrated the **Meetings Analytics Engine** from Java and Spark to **Scala** and **Flink** to scale up to **1M+ reports/min** and significantly ***improve real-time report generation*** by over **40%**.
- Built VideoMesh Developer APIs using **Java** and globally rolled them out for **30,000+ enterprises** with ***customer-facing applications***.

Intel Corporation — Bengaluru, India
Applied Research Scientist Intern; Advisors: Anbumani Subramanian, Anay Majee — *Aug 2021 – Dec 2021*

- Explored **Few-Shot Learning Object Detection** (FSOD) techniques to reduce ***catastrophic forgetting*** in constrained and heterogenous driving environments.
- Investigated and designed novel ***representation learning*** and ***attention mechanisms*** to learn ***inter/intra-object relationships*** using **PyTorch**.
- Outperformed existing approaches at the time on base and novel classes by **0.2 mAP and 3 mAP** on the ***Few-Shot India Driving Dataset***, a benchmark for FSOD.

SKILLS

Languages: Python, Scala, Java, C, R, Groovy, Octave, SQL, LaTeX
ML/Stats: PyTorch, Tensorflow, HuggingFace, NLTK, pandas, NumPy, scikit-learn, seaborn, matplotlib, plotly
Artificial Intelligence Techniques: Representation Learning, Transfer Learning, Few-Shot Learning, Language Models, Natural Language Understanding
Big Data/Cloud: Hadoop, Kafka, Zookeeper, Spark, Flink, Iceberg, Pinot, ELK
Frameworks/Tools: Git, GitHub, Jenkins, Docker, Kubernetes, Flask, Grafana, PSQL, MongoDB, AWS, Linux

PROJECTS AND PUBLICATIONS

[1] **ChatBERT - Multi-task approach to Pre-Training for Structured Conversations** — Webex AI 2023
Authors: Aditeya Baral, Work done as part of Cisco Webex AI Research

[2] **CalBERT - Code-mixed Adaptive Language Representations using BERT** — AAAI-MAKE 2022
Authors: Aditeya Baral, Aronya Baksy, Ansh Sarkar, Deeksha D, Ashwini M Joshi

[3] **Information Maximization to Overcome Catastrophic Forgetting in FSOD** — Intel VSG Research 2021
Authors: Aditeya Baral, Anay Majee, Anbumani Subramanian: Work done as part of Intel Research

[4] **MAPLE - MAsking words to generate blackout Poetry using Seq2Seq LEarning** — ACL-ICNLSP 2021
Authors: Aditeya Baral, Himanshu Jain, Deeksha D, Mamatha H R

[5] **Analysis of Kepler Objects of Interest using ML for Exoplanet Identification** — IEEE CONIT 2021
Authors: Ameya Rajendra Bhamare, Aditeya Baral, Saarthak Agarwal