

Vibha Masti

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EDUCATION

Carnegie Mellon University

Pittsburgh, PA

Master of Computational Data Science (MCDS)

December 2024

GPA: 4.26/4.00. Courses: Intro to DL (PhD), Intro to ML (MS), On-Device ML (PhD), Cloud Computing (MS)

PES University

Bangalore, India

Bachelor of Technology in Computer Science and Engineering

May 2023

GPA: 9.84/10.00. Courses: Natural Language Processing, Machine Intelligence, Data Analytics, Big Data

Awards: Prof. CNR Rao Scholarship (top 2%), Immense Contribution Award

SKILLS

Programming Languages: Python (proficient), Java (intermediate), C/C++ (moderate), R (moderate)

Machine Learning: PyTorch, pandas, numpy, scikit-learn, HuggingFace, NLTK, Keras, TensorFlow

Cloud: Azure, GCP, AWS, Git, Azure ML, Vertx, React, Regex, MongoDB, SQL, large-scale ETL

EXPERIENCE

Microsoft

Redmond, WA

Data & Applied Science Intern

May 2024 – Present

- Adding hyperparameter optimization techniques to Azure ML for ad construction models in Bing Ads.

Apple

Bangalore, India

Machine Learning Intern

Jan 2023 – Jun 2023

- Curated dataset of natural language descriptions of cellular issues in Apple's iOS platform used to fine-tune a few-shot multi-label classifier. Improved F1 score by 0.35 and deployed for online inference.

Goldman Sachs

Bangalore, India

Summer Analyst

Jun 2022 – Jul 2022

- Designed new efficient document data models in MongoDB to store mathematical constraints, replacing old SQL data store and reducing fetch times by 85%. Created fetch API backend with FastAPI and pydantic.

RESEARCH/PROJECTS

Efficient LLMs | Capstone Project, Advisor: Emma Strubell

Efficiency

- Formulating a method to grow fine-tuned model parameters from a smaller size to a larger size while retaining performance

Twitter Analytics on the Cloud | CMU, Cloud Computing

Java, Spark, ETL, AWS, Databricks

- Distributed, efficient web-tier of 3 microservices: blockchain mining & verification, QR code encoding/decoding, and Twitter user recommendation system. Performed large-scale ETL to reduce 1TB of raw Twitter data to 35GB stored in MySQL RDS. Serves 100,000 rps per service within budget of \$1.28/hr

MyTorch | CMU, Introduction to Deep Learning

Python, numpy

- PyTorch clone using numpy for linear, convolution, RNN, GRU, attention modules with backprop

Evaluation of Image Generation Models | Independent Study, Advisor: Yonatan Bisk

Image Generation

- Developing a new metric to measure the quality of diffusion-based image-generation models

On-Device Image Captioning | CMU, On-Device Machine Learning

CoreML, HuggingFace, PyTorch, Swift

- Image captioning model (BLIP) optimized to run on an iPhone (quantization, pruning)

SELECT PUBLICATIONS

- [1] ScripTONES: Sentiment-Conditioned Music Generation for Movie Scripts, Machine Learning for Audio Workshop, **NeurIPS 2023**
- [2] C3PO: A lightweight copying mechanism for translating pseudocode to code, Student Research Workshop, **AAACL-IJCNLP 2022**
- [3] Multivariate Covid-19 forecasting with vaccinations as a factor: The case of India and USA, IEEE TENSYP 2022 and Workshop on Healthcare AI and COVID-19, **ICML 2022** (Track 2)
- [4] GraphCoReg: Co-training for regression on temporal graphs, *Best Student Paper*, International Workshop on Mining and Learning with Graphs, **ECML-PKDD 2022**
- [5] A Comparative Study of Algorithms for Intelligent Traffic Signal Control, **ICMLAS 2021**