

# Vibha Masti

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## EDUCATION

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### Carnegie Mellon University

Master of Computational Data Science (MCDS)

GPA: 4.33/4.00. Coursework: Intro to DL (PhD), Intro to ML, On-Device ML (PhD)

Pittsburgh, PA

December 2024

### PES University

Bachelor of Technology in Computer Science and Engineering

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

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

Bangalore, India

May 2023

## SKILLS

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

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

**Cloud/Web:** Azure ML, Google Cloud Platform, AWS, Git, LaTeX, Flask, FastAPI, React, Regex, MongoDB, SQL

## EXPERIENCE

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### Apple

Software Engineering Intern

- Collected, annotated, and cleaned up natural language descriptions of cellular issues in Apple's iOS platform
- Fine-tuned BERT using PyTorch and HuggingFace to classify data in a few-shot setting and improved multilabel classification accuracy by 30%
- Deployed model for online inference and integrated into team's automated analysis pipeline

Bangalore, India

Jan 2023 – Jun 2023

### Goldman Sachs

Summer Analyst

- 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

Bangalore, India

Jun 2022 – Jul 2022

### Netradyne

Project Intern

- Developed ReactJS web tool to pitch product to clients by showcasing usage statistics on interactive map
- Efficiently fetched, calculated and displayed statistics from SQL database at different levels of granularity for different geographical areas

Bangalore, India

Jun 2021 – Jul 2021

## PROJECTS

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**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)

**MyTorch** | CMU, Introduction to Deep Learning

Python, numpy

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

**Face Classification and Verification** | CMU, Introduction to Deep Learning

Python, PyTorch

- ResNet-based celebrity face classification (closed set) and verification (open set) < 20M params

**CCG A\* Parser** | PESU, Natural Language Processing

NLTK, Python

- Implementation of NLTK's CCG Parser with the A\* algorithm

## SELECT PUBLICATIONS

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- [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 TENSYPMP 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**