Palti Ramyasri

B.Tech in Computer Science and Engineering with Honors
IIT Bombay

+91-8199939995
ramyapalti11@gmail.com
Github | LinkedIn

Education

Degree/Certificate	Institute/Board	CGPA	Year
B.Tech in Computer Science and Engineering	Indian Institute of Technology, Bombay	8.62/10	2023
Honors in Computer Science	Indian Institute of Technology, Bombay	8.75/10	2023
XII	Board of Intermediate Education, Telangana	9.84/10	2019
X	State Board of Secondary Education, Telangana	10/10	2017

Professional Summary

Computer Science graduate from **IIT Bombay** with a passion for AI/ML and solving real-world challenges.
Growing up with a deep respect for analytical thinking and a drive to understand ideas clearly, I developed a passion for approaching problems with clarity and creativity. This approach helped me grasp complex mathematical concepts and secure a rank of 199 out of 1.2 million students in the IIT JEE Advanced examination.

Bachelor Thesis work included a **Meta-Learning Analysis** for evaluating the performance of Neural Networks vs. Boosted Trees on Tabular Data and implementing **Parset library on GPU**.

Contributed to firm's NLP initiatives at **Goldman Sachs**, by automating alert-resolution workflows, earning a pre-placement offer and internal recognition for reducing operational costs. Over 2 years of experience as a Software Engineer working on distributed data pipelines and the on-prem ML execution platform. Worked on Spark batch/stream processing for distributed data solutions(HBase, Hive, HDFS, Hazelcast) and alert processing for anomaly detection models.

Professional Experience

Software Engineer | *Goldman Sachs* July '23-Present

- Scaled **Spark–Kafka** pipelines to support **1.5×** data volume, ensuring reliability and throughput of the on-prem **ML execution platform** for batch and anomaly detection models
- Developed a multi-cluster **Hazelcast** Data Browser and Management Center achieving **60%** lower query latency
- Optimized real-time querying on Java microservices by improving data transformations for alert-monitoring systems

Machine Learning Internship | *Goldman Sachs* May '22-Jul '22

- Implemented automation of **Alert Resolution Workflows** from Alert Runbooks using the **T5 model**
- Enhanced model pre-training by applying **Unsupervised Denoising** and **Masked Language Modeling**
- Augmented the training dataset by generating 30k+ samples from 3k+ datapoints to improve translation robustness

Teaching Assistant | *Prof. Shivaram Kalyanakrishnan, IIT Bombay* Feb 2023

- Mentored students and working professionals from diverse engineering backgrounds in the **Mathematical Foundations of AI and ML** course
- Designed assignments and assisted in labs on Feed Forward Neural Networks and path finding algorithms

Machine Learning Projects

Deep Learning For Tabular Data Autumn '22

Guide: Prof. Ganesh Ramakrishnan | Bachelor Thesis Project

- Collaborated with **Abacus.AI** to study performance of **Neural Nets vs Boosted trees** on tabular data
- Contributed to analyzing over 300 meta features to understand how dataset characteristics affect performance
- Evaluated algorithms and hyperparameters on **OpenML** tabular datasets and identified meta-learning patterns

Song Lyric Generation Autumn '22

Guide : Prof. Pushpak Bhattacharya | Natural Language Processing

- Developed a sentiment-conditioned **LSTM** Neural Network for Pop-genre **lyric generation** on user prompts
- Evaluated model performance by plotting line length and word repetition frequency for original vs predicted lyrics

Image Caption Validation | Deep Learning Spring '22

- Developed a deep neural network for image-caption consistency, achieving an **80% accuracy** on MS COCO
- Integrated a multi-modal architecture featuring a **CNN** for robust visual feature extraction, an **LSTM** for sequential caption encoding, and a **Feed-Forward Network** to perform final cross-modal validation
- Evaluated the system using **ROC, FAR, and FRR** curves to determine the optimal consistency threshold

Question Answering System | Natural Language Processing Spring '22

- Built a Factoid Question Answering model on the **SQuAD** dataset, utilizing a pre-trained **BERT** embedder
- Trained an **LSTM** architecture with attention to question and context, and achieved an **F1 score of 91%**

Document Classification and Representation Analysis | Web Search and Mining Autumn '22

- Performed document classification on the **20 Newsgroups** dataset (approximately 18,000 news posts across 20 categories), focusing on comparative performance analysis of different feature representations
- Implemented document representations as **Binary Bag of Words** (B-BoW) and **Context Bag of Words** (C-BoW) to train and evaluate **Naive-Bayes Multinomial** and **Naive-Bayes Poisson** classifiers

Systems Projects

Parset and its implementation on GPU Spring '23

Guide : Prof. Rushikesh K.Joshi | Bachelor's Thesis Project

- Designed and implemented a **CUDA** C++ template-based library to adapt the **Parset** construct for **GPU architectures**, abstracting distributed system complexity and enabling transparent **SPMD/MPMD** parallelism
- Evaluated kernel performance for **Memory-intensive**(Merge Sort) vs **Compute-intensive**(Matrix Multiplication
- Leveraged findings on **Host-Device communication** latency to inform the design of Parset construct execution

Simulation of a P2P Cryptocurrency Network | Blockchain Technology Spring '23

- Built a discrete-event simulator for a multi-peer blockchain network with transaction generation and block mining
- Simulated **Selfish Mining** and **Stubborn Mining** attacks and performed experiments with different key parameters to observe and compare their impact on network performance and behavior

Compiler Design | Implementation of Programming Languages Spring '22

- Developed a Compiler from scratch for C-like languages using lex and yacc to generate **TAC** and **RTL** statements
- Implemented major Compiler phases including scanning, parsing, lexical analysis, and register allocation algorithms

Custom Shell with Enhanced Features and Multithreading | Operating Systems Spring '22

- Enhanced **xv6** operating system by adding system calls, featuring memory and process management techniques
- Developed **bash-like shell** supporting serial, parallel, foreground, and background execution using system calls

Skills

Programming: C/C++, Python, Java, Spark, CUDA, HTML/CSS, JavaScript/TypeScript, Bash, VHDL
Frameworks and Libraries: OpenCV, Pandas, TensorFlow, PyTorch, Hugging Face, Spring Boot, Dropwizard, NodeJS
Databases & Software: HBase, HDFS, Hive, Hazelcast, MongoDB, Django, Angular, React, MATLAB, Git/GitHub

Coursework Information

Machine Learning and Natural Language Processing: Information Retrieval & Mining for HyperText & the Web - Speech, Natural Language Processing & the Web - Deep Learning for Natural Language Processing - Foundations of Intelligent and Learning Agents - Artificial Intelligence and Machine Learning

Systems and Others: Virtualization and Cloud Computing - Blockchains, Cryptocurrencies and Smart Contracts - Automata Theory - Database and Information Systems - Operating Systems - Computer Architecture - Computer Networks - Compilers - Software Systems - Data Structures and Algorithms - Design and Analysis of Algorithms

Math: Linear Algebra - Calculus - Discrete Structures - Numerical Analysis - Mathematical Methods in Engineering

Extracurricular Activities

Department Academic Mentor | *DAMP CSE, IIT Bombay* May '22-May '23

- Mentored sophomore students for a smooth transition into the department by helping them with challenges they faced and motivated students in the Academic Rehabilitation Program to perform academically well

Web Team Lead | *Undergraduate Academic Council, IIT Bombay* May '21-May '22

- Developed student support dashboards and workshop portals for the institute's academic cells