Sai Navyanth Penumaka

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Education

New York University — **New York City, United States**
Master of Science in Computer Engineering — *Aug 2024 - May 2026*
– ***Teaching Assistant*** for the **CS** course 'Intro to Social Networking' (Networks, Graph Theory, Game Theory, and more)

Indian Institute of Technology (IIT) Bhubaneswar — **Bhubaneswar, India**
Bachelor of Technology ***(Honors)*** *in Electrical Engineering,* **Grade: 3.77/4.0** — *Jul 2018 - May 2022*

Work Experience

Flipkart Internet Private Limited (Walmart) — **Bengaluru, India**
Software Development Engineer — Jun 2022 - Aug 2024

- Architected and coded critical back-end services (Offer & Price recommendation), contributing significantly to **$ 7B**
- Spearheaded the revamp of the offers system, where sellers can opt-in, modify, and opt-out of offers. Designed and programmed APIs, resulting in a **50% increase** in offer opt-ins and a **75% reduction** in **API latencies**
- Successfully upgraded a critical MySQL cluster from version 5.6 to 5.7 and optimized tables, reducing disk space usage from **91% to 30%**, **CPU utilization** from **17% to 5%**, and **latency by 50%**.
- Spearheaded the creation of 'Seller Penalization System' from conception to implementation using **Java, Elasticsearch, Kafka, and Apache Spark**, achieving a substantial **10% reduction** in returns and enhancing product quality
- **Single-handedly** engineered and developed the 'rewards-serving' service from the **ground up** using Java, enabling sellers to manage rewards through a dashboard, achieving a **400% return** (RPC = 5)
- Architected rewards-serving through high-level (HLD) and low-level design (LLD), built **Dropwizard Java** Application powered by **Elasticsearch** database, engineered **APIs**, and set up **CI/CD** pipelines and **Kubernetes** infrastructure
- Automated troubleshooting of seller escalations and system issues by creating a self-service dashboard, reducing manual resolution **time by 80%.** Notably, automation of MySQL archival reduced **KTLO by 100%**
- Created price-recommendation models using **Spark & Scala**, boosting weekly adoptions from **93K to 246K (165%)**

Software Engineer Intern — **May 2021 - Jul 2021**

- Reduced Scribe's **CPU utilization from 70% to 14%** and increased HTML to PDF rendering **speed by 3 times**
- Implemented and conducted load testing on 3 solutions, each yielding a minimum **40% reduction** in CPU utilization

Technical Skills

Programming Languages: C++, Java, C, Python, Scala, JavaScript, Matlab
Web Development: **1) Front-end:** HTML, CSS, Javascript, React.js; **2) Back-end:** REST APIs, Database Systems
Machine Learning: ML Algorithms, Neural Networks, Natural Language Processing, Keras, Numpy, Sklearn, TensorFlow
CS Fundamentals: Data Structures and Algorithms, Object Oriented Programming, Operating Systems, Networks
Others: Git, MySQL, Elasticsearch, Kafka, CI/CD, APIs, Distributed Systems, Design Patterns, Debezium, High Level Design, Low Level Design, Apache Spark, Kubernetes, Hibernate, Google Guice, Unix, Linux, Dropwizard and Spring

Key Projects

Course Registration System | *Java, Web Development* — ***Github***

- Designed and developed a robust **RESTful** Web Application using **Java and MySQL** adhering to **SOLID principles**
- Students can add, delete, or drop courses and check grades while professors choose courses to teach and submit grades

Detection of COVID-19 from Chest X-Rays using Machine Learning | ***Research*** | *IIT Bhubaneswar* — ***Thesis***

- Implemented a computationally efficient and highly accurate Machine Learning model (Convolutional Neural Network) capable of detecting COVID-19 from chest X-ray images, achieving a remarkable **accuracy of 97.17%**
- Conducted a comprehensive performance evaluation of SVM, KNN, ANN, CNN, VGG16, DenseNet121 & Xception

Stock Price Prediction | *Python, Machine Learning* — ***Github***

- Created an **LSTM**-based deep learning model for predicting stock prices, achieving a remarkable **RMSE** of **1.5** (<1%)

Hand-Written Digit Recognition | *Python, Machine Learning* — ***Github***

- Constructed a *Convolutional Neural Network* using Keras to classify images of handwritten digits (0-9) and achieved an **accuracy of 99.39%** on a test set of 10,000 samples

Awards/Achievements/Leadership

- Awarded prestigious '***Instant Karma***' **Employee Achievement Award** for outstanding contributions, Q4 2022
- Achieved **3rd place** in the company-wide **Hackathon** for building a Price Recommendation Model using ML
- **General Secretary** | ***Alumni Cell and International Affairs***, *IIT Bhubaneswar* | *2021-2022*