Meet Oswal

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Education

New York University, Tandon School of Engineering (New York , New York) **August 2023 – Present**

Master of Science in Computer Science

Savitribai Phule Pune University. (Pune, Maharashtra) **August 2019 – May 2023**

Bachelor of Technology in Computer Engineering

Technical Skills & Relevant Coursework

Languages: Python, JavaScript, Typescript, SQL, Jupyter Notebook, C++

Technologies: Machine Learning, Deep Learning, Data Science, Big Data, Web 3.0, Cloud Computing, Web Development, Database, Git, Information Retrieval

Platforms/ Libraries : PyTorch, Tenserflow, Skit-learn, Numpy, Pandas, AWS, MongoDB, PostgreSQL, Anaconda, PowerBI, Tableau, Postman.

Experience

Vishwakarma Institute of Information Technology. **Pune, India**

Research Intern (Big Data, Cloud Computing, MERN, Federal Cloud) *January 2023 – May 2023*

- Led a team of 4 researchers in the research of a **middleware solution for data storage**, produced by various sensors and store this data using multiple cloud service providers depending on the type of data.
- Worked on developing a method which connects the user system to the middleware using **RestAPI** and storing metadata to the database.
- Showcased innovative thinking by addressing real-world challenges in **cost effective data management and storage**. The project was tested using a dataset of 100GB from different data sources.
- The result of research was a **reduction** in the **overall data storage cost** on the cloud, coupled with an increase in efficiency

Cloudedgic Inc. **Pune, India**

SDE Intern (GMM, Machine Learning, Big Data, Data Science, MERN, AWS, Database) *June 2022 – December 2022*

- Developed a Music Web Application using **MERN stack** and integrated **AWS services** (S3, DynamoDB, EC2) for seamless performance and scalability, catering to user needs efficiently.
- Implemented a sophisticated Recommendation System utilizing **GMM Clustering**, analyzing user search history and 10 distinct attributes, enhancing user experience and engagement. Successfully tested the model on a substantial user base of 100,000.
- Designed and implemented over **80 APIs**, ensuring smooth communication between the backend and frontend, optimizing user interaction and functionality.
- Served as a proficient Database Administrator, responsible for the creation and management of the application's database, ensuring data integrity, security, and seamless operation

Projects

Image Segmentation using Transformers | *PyTorch, Python, Vision-Transformers* **March 2024 - May 2024**

∗ Conducted a comparative study on transformer-based (ViT, UNet Transformer) and CNN (SegNet) models for image segmentation, leveraging the OxfordIIIT pet dataset to analyze efficacy across architectural configurations.

∗ Demonstrated strong analytical skills by meticulously training and evaluating models, showcasing the superiority of Ensembling UNet (ResNet50, DenseNet121, MobileNet v2) and identifying limitations in ViT models due to parameter count.

Index Sharding: Search using Clustering Techniques | *Tenserflow, Python, C++* **October 2023 - December 2023**

∗ Developed and Implemented Advanced Index Sharding Techniques: Spearheaded the design and execution of index sharding within a web search engine framework utilizing carefully curated vectors derived from a substantial dataset of 3 million documents

∗ Leveraged C++ for efficient index building and Python, alongside libraries such as scikit-learn, to deploy three distinct machine learning models including K-Means, K-Means Mini-Batch, and Gaussian Mixture Models (GMMs).

Air Quality Index Predictor | *Tenserflow, Python, Data Science, Pandas, Numpy* **March 2022 - May 2022**

∗ Developed Deep Learning model to predict the Air Quality Index based on the amount of 10 different gasses present in an area.

∗ This Neural Network model is fed with different information of AQI of 20 years with an test R-squared value of 0.86

Quick Draw Recognizer | *Node.js, Angular.js, Python, Tenserflow, Computer Vision* **January 2021 - March 2021**

∗ Trained a Deep Learning Model which can recognize and predict hand drawn drawings. The model was trained using 5 million hand drawn images from 10 different classes. The test accuracy of the model was 83% on a dataset of 1 million images.