Neel Shah

+919653380766 neelshah29042002@gmail.com neel-shah-209997212 Neel-Shah-29 Portfolio

Education

Veermata Jijabai Technological Institute Aug. 20 – Present
B.Tech in Computer Engineering *Mumbai, India*
CGPA : **9.54/10**, Rank : **2**

Prakash Junior College of Commerce And Science Jul. 18 – May 20
*HSC : **88.67%** , MHT-CET : **99.92** percentile* *Mumbai, India*

Relevant Coursework

- Data Structures
- Algorithms Analysis
- Data Interpretation
- Database Management
- Linear Algebra
- Operating System
- OOPs
- Artificial Intelligence
- NLP
- Software Engineering
- Big Data Analytics
- Machine Learning

Experience

Software Developer | Python, Django, Angular, .NET, SQL Aug'24 – Present
Bank of New York, Manager: Rahul Kale *Pune, India*

- Working with **Investment management** team on Distribution Reporting Tracker Application to convert a windows application to Full stack application.
- Resolved app side vulnerabilities and issues on the **Mellon compliance site** used by boutiques like Mellon, Insight, Newton for report generation and analysis.

Summer@EPFL Intern @Dlab | Python, LLMs, Pytorch, Flask Jun'24 – Sept'24
EPFL, Advisor: Prof. Robert West *Switzerland, Europe*

- Worked on **Aiflows**, specifically implementing code for running flows on local servers. Explored how Competitive coding flows (**CCFlows**) performs using open source models like Meta-Llama-70B and mistral.
- Conducted research on whether reward conditioning/critique generation before model responses improves training results.

Machine Learning Engineer | Python, GCP, LLMs, Audio Models, Flask, Docker May'24 – Aug'24
Simplismart, Manager: Devansh Ghatak *Bengaluru, India*

- Used various machine learning techniques and inference servers, like **Nvidia Triton**, to reduce the inference time of models at the deployment stage.
- Worked on speech-to-text services using state-of-the-art models for multilingual workloads. I also contributed to **Dobby**, a product to produce faster stable diffusion pipelines.

Machine Learning Intern | Python, LLMs, Pytorch, Tensorflow, GCP Jan'24 – Jun'24
Gloroots, Manager: Abhirup Nath *Bengaluru, India*

- Developed and refined components for **job and resume parsers** using LLMs and NLP techniques, including **recommendation algorithms** to match candidates with ideal jobs and vice versa.
- Developed production APIs to deploy machine learning models using Python (Flask/Django/FastAPI).

Summer@EPFL Intern @ML4ED | Python, Knowledge Graphs, RL, Explainable AI, Docker Jun'23 – Sept'23
EPFL, Advisor: Prof. Tanja Kaeser *Switzerland, Europe*

- Worked on a sequential course recommendation system using explanability, knowledge graphs, and reinforcement learning in order to provide reasonable explanations to each recommended courses.
- Developed the **Policy-Guided Path Reasoning (PGPR)** methodology for sequential recommendation. Publication accepted for **LAK 2024**.

GSOC '22 '23 Mentee | Python, C++, Machine Learning, Deep Learning May'22 – Oct'23
CERN, Advisor: Dr. Lorenzo Moneta *Switzerland, Europe*

- Developed a fast inference system in TMVA called **SOFIE** (System for Optimised Fast Inference code Emit), which compiles ONNX models into C++ scripts.
- Developed deep learning operations and unit tests to validate the written code. Presented contributions at **ACAT 2022**.

Research Intern @ CFILT Lab | NLP, Machine Learning, Django Oct'22 – Apr'23
IIT Bombay, Advisor: Prof. Pushpak Bhattacharyya *Mumbai, India*

- Worked to map synsets in **IndoWordnet** and link them with Princeton's WordNet, using embeddings of synsets and gloss terms.
- Worked on calculating cosine similarity between embeddings and providing automatic linking between synsets in different languages. Submitted work to **Coling 2025**.

Projects

Digital Twin of Distributed Transformer | *Python, Azure, GCP, Machine Learning* **Jul. 23 - Aug. 24**

* The project provides a complete solution for realtime transformer monitoring– **Descriptive, Prescriptive, Predictive and Controlling** Analysis of a Distributed Transformer.
* Worked on preparing a digital replica of distributed transformer using Microsoft Azure services.
* Used Time series models like LSTM and Boosting methods like XG Boosting were used to predict the future life of transformer based on the previous transformer data provided by Tata power.

Multi-Cam Re-ID | *Computer Vision, Yolo, Object tracking, Machine Learning* **Jun. 22 - Aug. 22**

* The project aims to do multi camera object tracking. Input Video Detections are generated from Yolo-v4 model. Implemented algorithms like **Centroid tracker, IOU tracker, Sort and Deep Sort**.
* We have implemented our own **IOU prediction tracker** which gives better results on Occlusions. This algorithms were part of single camera object tracking.

Sketch-2-Paint | *CGANs, Linear Algebra, Deep Learning, Python ,Tensorflow* **Aug. 21 - Sept. 21**

* This project involved building a Conditional Generative Adversarial Network which accepts a 256x256 px black and white sketch image and predicts the colored version of the image without knowing the ground truth.
* We have not only seen how a **Conditional GAN** works but also have successfully implemented it to predict colored images from the given black and white input sketch images.

Sociablast-A Chat+Bot Application |*React Js,Node Js,Mongo DB,Socket.IO* **Nov. 21 - Jan. 22**

* Made an application with **chat + bot** having different features.
* User is given an option to **create** his own room and and Join other rooms with strong encryption.
* Worked with different API's and a strong database connection was made using MongoDB

Achievements

Vision Beyond Limits, Techfest @IIT Bombay Nov. 21 - Jan. 22

*Secured **Rank 1** in the competition, achieving **9.4/10** points*

· Used **multi-class classification** approach for disaster assessment from a dataset of post-earthquake satellite imagery.
· Created **multi-label mask** images from **geo-json** data to train a **UNet** model for classifying buildings based on their damage.

Aasan AI Jun. 22 - July 22

*Secured **Rank 4***

· AasanAI is a **Deep Learning-powered Web and Mobile application** to assist with yoga workouts. It uses a **Movenet Model** for classification of yoga poses by detecting keypoints of various body parts.
· Detects yogasana positions and provides feedback to help perfect your posture.

Datathon - KJ Somaiya, Datazen Nov. 21

*Secured **Rank 4***

· **Exploratory data analysis** on the provided dataset. Business Analytics and Tabular Data Modelling skills were tested.

Code For Good July 23

Runner Up

· Developed an end-to-end application representing the architectural model of Udyamita, an NGO.
· The project aimed to solve issues faced by farmers in accessing appropriate market prices and assigning an efficient quality index to products based on previous consumer ratings.

Publications

1. **Finding Paths for Explainable MOOC Recommendation: A Learner Perspective** ↪
   Accepted at LAK (Learning Analytics knowledge Conference) 2024
2. **ROOT Machine Learning Ecosystem for Data Analysis** ↪
   Accepted at 21st International Workshop on Advanced Computing and Analysis Techniques
3. **Semi-automatic WordNet Linking using Synset Embeddings** ↪
   Submitted at Coling 2025

Technical Skills

Courses taken: **Linear Algebra** by Gilbert Strang - Coursera, **Discrete Mathematics** from University of Pennsylvania and **Algorithms** through PACT under Dr. Rajiv Gandhi, **Deep Learning Specialization** by Andrew Ng - Coursera

Languages: C, C++, Python, Java, Latex

Web Developer Tools: HTML, CSS, Javascript, React JS, Node JS, Mongo DB, Next Js, Docker

Technologies/Frameworks: Linux, GitHub, Tensorflow, Keras, Pytorch, Google Cloud Platform.

Domains explored: Machine Learning, Artificial Intelligence, Deep Learning, Computer Vision, Web development.

Mentorship Roles

* **Google Summer Of Code 2024** Mentor for the Inference Code Generation project. More details about the project can be found ***here***
* Provided mentorship to sophomore undergraduate students for **Eklavya mentorship program**. We created a project on **Neural Style Transfer** based on Machine Learning, Deep Learning and Diffusion models.The aim project is to perform NST and understanding and implementing **VGG** from scratch. The details regarding the project can be found ***here***.
* Conducted Workshops for 150+ juniors on **Computer Vision, Machine Learning, Artificial Intelligence, Programming Languages, Web Development**. The details related to the ongoing projects can be found ***here***.
* Teaching Assistant for **Machine Learning** and **Natural language Processing** courses under Prof. Seema Shrawne and Prof. Manasi Kulkarni respectively.

Co-Curricular Activities

* Selected at the **Amazon ML Summer School, 2022 and 2023**. The acknowledgement can be found ***here***.
* Contributed to several Open Source Organizations like **Boost C++ Library(Ublas), Geomscale (Volesti), CERN HSF(Root Project)**.
* Rank 2 in **Computer Engineering Department** at VJTI with an acadamic **CGPA** of **9.54/10**.
* Nominated as **Operations and Marketing** executive at **Technovanza VJTI**, which is a technical fest at VJTI, Mumbai where I took care of sponsorship events, marketing events and also helped in creating a different hackathon problem statements and judging the solutions of participants.
* Core Member of the **Google Developer Students Club,VJTI** a coding organization backed by Google where we conduct different development and cloud computing bootcamps.