SPARSH NAGPAL

Computer Engineering Student | BE - 4th Year

A self-motivated Computer Engineering undergraduate student with an advanced analytical & creative mindset having a strong link in theoretical and practical approach gained from my courses, research and internship experiences. Along with proficient technical skills, I also possess excellent leadership and management qualities making me a quintessential candidate.

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Qualification	University/School	Year of Passing	%/CGPA
B.E. (Computer Engineering) - University of Mumbai	Thadomal Shahani Engineering College, Mumbai	2022 (Expected)	9/10 (6 semesters aggregate)
12th (Non-medical Science) – HSC	Pace Junior College, Powai, Mumbai	2018	83.69%
10th – ICSE	Pawar Public School, Chandivali, Mumbai	2016	95.17%

Work Experience

FRIENDS FOR INCLUSION, REMOTE — **Deep Learning Intern** — **Mar '21 – Present**

- Modelled translator of **India's First efficient Grammar-based Indian sign language interpreter**.
- Implemented **NLP functions** like similarity function, simplification, Parts of Speech Tag, translation, transliteration, etc.
- Performed **data analysis** over Wikipedia corpus to find the set of targeted words
- Enhanced the model efficacy from 60% understandability to **over 90%** by implementing various NLP libraries like Spacy & NLTK.
- Building an **emotion classification model using BERT** architecture for the emotion representation in the animation model.
- **Managing** and supervising **4 Deep Learning interns** under me.
- Ideated and currently working upon the **Text Simplification model** using state-of-art encoder architecture.
- Building a **real-time Indian Sign Language to text model** using a CNN-RNN based model along with a **YOLO** model for static image detection.
- **Built the database** from the above model by performing **web scraping** over Youtube Videos, extracting images and labelling individual bounding boxes.
- Curating an **Image Captioning pipeline** model using Attention models.
- Tested model on **AWS Lambda** serverless service **with No-SQL DynamoDb** database.
- Scripted a **research paper** based on the work upon Indian Sign Languages and their English Translation which was **published and presented in Microsoft Sponsored IIIT B conference, Empower 2021.** The paper was also accepted at the **California State University Northridge's Disability Conference.**
- Currently building a **chatbot /Audio assistant** for form filling which uses **Rasa's Natural Language Understanding** (NLU) tools which utilizes trigger word detection.
- Managing an **audiobook generator** model which works on **OCR** conversion and **header footer elimination** using RNN and CNN models.
- Performed **Dockerization** of the code files.

PIANALYTIX, REMOTE — **Machine Learning Research Intern** — **Nov '20 – DEC '20**

- Scripted four detailed technical articles based on topics including **Decision Tree Algorithm, OpenCV library, Autocorrection algorithm and Text Summarization model**
- All articles were **published** in the official website on the Pianalytix website.

ARGYLE HR SOLUTIONS PVT LTD., Mumbai — **Business Development Intern** — **Jun '19 – Jul '19**

- Managed and fine-tuned the company's **official website**
- Interacted with over potential **100 clients** for the ongoing projects
- Project **data management** and filtering

Projects

Sketch to Face using GANs (In progress) — Generative Adversarial Networks

Using state of art **Generative Adversarial Networks** to convert **input sketch or drawing images to real life human face** images. This project involved researching on architectures and implying a recent model based on research.

Music Genre Classification Using Machine Learning Models — Machine Learning Models, Python, Flask, HTML, CSS

*A **comparative study** of seven Machine Learning Algorithms, **K Nearest Neighbours, five ensemble algorithms and Logistic Regression** on Musical dataset GTZan to classify various **forms of genres** based on 55 musical features. The best model received an accuracy of **84%.** Front-end was linked to the model using **Flask** backend library.*

Online KYC Verification System — CNN, Image Processing, ML Models, Flask, HTML, CSS, JS

*An online KVY portal **with 5 steps verification** which analysis IDs like Aadhar card and Pan card by **OCR detection** using Tesseract. It includes Image Detection using **CNN** on VGG-16 transfer learning model, **Siamese similarity** for signature comparison, **OTP** verification system, **OCR** document authentication.*

'AmazKart' E-commerce Aggregator with WhatsApp Automation Selenium Automation, Python

*A Python based aggregator program which on inputting the name of required product program performs **automated** search and shows **comparative** best search results from both Amazon and Flipkart using **BeautifulSoup library** and **Selenium web-scrapping.** It provides **automated WhatsApp** detail transfer option.*

Personalized Streaming List maintainer with User Authentication HTML, CSS, JS, PHP, MySQL

*The web application helps user create a personalized movie watchlist by performing **CRUD operations** from the movie database and personal selected list. The operations took place real-time which required **AJAX** integration.*

A Movie Booking System Java

A movie booking system where the user can select certain seats once from the given matrix allotted for each specific show.

Superstore Data Analysis Python

US store dataset analysis performed using python libraries matplotlib, seaborn and ggplot with graphical representation of sales, profit/loss, discounts and quantity.

Research Papers

Musical Genre Classification comparative study on various ML models, 2021 International Journal for Research in Applied Science and Engineering Technology (IJRASET)

Improving Efficacy of the Indian Sign Language Translation Model, 2021 Empower Journal at IIIT Bangalore.

Indian Sign Language Translation Model for Virtual Interpretation – Paper Accepted at 37th CSUN Assistive Technology Conference

Sketch to face Image translation model using Multi-GAN architecture approach – In progress

Skills

Python (Proficient), Selenium Automation, Flask Backend-Connectivity	Machine Learning, Deep Learning (NN, CNN, RNN), TensorFlow, OpenCV, Keras, GANs
Java, C, C++	Natural Language Processing, Natural Language Understanding
HTML, CSS, Bootstrap, JavaScript, XML, JSON	SQL, PHP, Data warehousing
Git, Docker	

Courses

Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning	Coursera	**Natural Language Processing in Vectorized Models**	Coursera
Convolutional Neural Networks in Python	Udemy	**Automate the Boring Stuff using Python -**	Udemy
Image Classification with CNNs using Keras	Coursera	**HTML, CSS, and JavaScript for Web Developers**	Coursera
Building Basic General Adversarial Networks	Coursera	**Using Python to Access Web Data**	Coursera
PHP Tutorial Course	SoloLearn	**Deep Learning Specialization** [Audit Course]	Coursera
Natural Language Processing Specialization [Audit Course]	Coursera	**Convolutional Neural Networks in TensorFlow** [Audit Course]	Coursera

Co-Curricular & Extra-Curricular Activities

Social	- **Rotaract Club of Bombay Powai** – President (2021- Present) – Community Service Director & Sergeant at Arms (2020-21) – General Body Member (2019-20)
Technical	- Jr. Committee Member at the **TSEC CodeCell (2019-20)** - **Organized** College's biggest hackathon 'TSEC Hacks' at CodeCell with **700+ participants** (2020) - Participated in **Delloite Technology Consulting Virtual internship** (2020) - Completed two **Sparks Foundation task-based Internships** in the domains of **'Data Science and Business Analytics' and 'Computer Vision'.** - Participated in various **Hackathons** like DJ Sanghvi's CodeIT Hackathon (2020) and TSEC Hacks Hackathon (2021) - Participated in **Global Level Programming Contest** – Heisenbug (2020)
Achievements	- **International Mathematics Olympiad Silver medalist** at school and Jr. college level - Received Special **merit awards** for securing school **highest in 10th board** in Computers and Social Studies - **First Prize** at Contingent Fashion Show Competition (SNDT college) and **Second Prize** at National College - **Outstanding Member of the Year Award** - Rotaract Club of Bombay Powai (2019-20) - Member of Thadomal Shahani Engineering **College Cricket team** (2021-22)
Hobbies	- Playing Cricket, Table Tennis, Squash, Chess, Sketching, Painting, Travelling, Baking, Poetry