VISHAL KUMAR | vk310402@gamil.com | LinkedIn Profile

CIVIL ENGINEERING (B. Tech 2020-2024) | GitHub

INDIAN INSTITUTE OF ENGINEERING SCIENCE AND TECHNOLOGY, SHIBPUR

EDUCATION

Examination	Year	Institute	CGPA / Marks(%)
B.TECH	2020-24	IIEST SHIBPUR	8.13/10
All India Senior Secondary School Examination	2018-20	CBSE	86.5 %
All India Secondary School Examination	2017-18	CBSE	83.4

SCHOLASTIC ACHIEVEMENTS

➤ Achieved maximum rating of **1549** on Code-chef.   [2022]

➤ Secured 96.4 percentile in Joint Entrance Exam, Advance among 0.17 million candidates.   [2020]

➤ Acquired **97.3 percentile in** Joint Entrance Exam, Mains among 0.93 million candidates   [2020]

INTERNSHIP

Image-based Crack Detection using Machine learning Approach | ISM Dhanbad | Proof's. Piyali Sengupta   [May 23 – July 23]

● Assigned task is to detect or contours the concrete cracks created by artificial equipment in a lab. Through Deep Learning concepts have to teach machine to make difference in crack surface images & uncrack surface images which comes under Binary Classification.

● Made the CNN model using latest technology of deep learning that is **Transfer Learning** with so much convolutional layers and get prediction on new crack images by training accuracy of 0.98 & **validation accuracy** greater than 0.95 which seems no overfitting issues.

● Customized some pretrained model that is **VGG16 , RESNET** and to train the model dataset used from *Kaggle of Surface Crack Detection*.

● Formulated computer vision tools on the crack images like **Canny edge detection**, **Threshold(**150**)**, **Contour** to highlight on cracks.   Link

● Operated the **OpenCv2**, **PIL** and **patchify** libraries to concert the large (3000x4000) sized image into small patches of size (225 x 225) and also coded for saving this patches or grid images in system folder.

KEYPROJECTS

Human Pose Identifiers using Pose Net   [August 23`]

● Identified poses of one Human body at a time with total 12 joints with the help of **Pose Net** model contributed by google. It helps to predict that 12 joints with good accuracy.

● Compiled on live server merged by processing language or its update version **Pj5.js or ml5.js** with the components of setup & draw functions.

Multiclass-Classification Problem, Sign Language MNIST | *Course Work – Project*   [July 23 – August 23]

● Using sign Language MNIST dataset, which have 28x28 images of hands depicting the 26 letters of the English alphabet.

● Needed to pre-process the data first, to fed into you CNN to correctly classify image ang getting testing accuracy > 90%.

● Processed the generators for augmentation using keras `ImageDataGenerator`, prepared a CNN model of 2 conv2D, 2 maxPooling, activation function in last layer is **SoftMax** to predict the new random Sign Language images.

● Visualized relation between training vs validation accuracy and training vs validation loss on 10 epochs using matplotlib python libraries.

Classification of Cats & Dogs Model | *Self-Learning Project*

● Based on CNN's for classification of Cats and Dogs from big datasets which classify it by an image at validation accuracy of around 77%.

● Executed new techniques of Deep learning that is **Image Augmentation**, **Transfer Learning** using various pertained model like VGG16, RESNET, Creating models of 4 Convolutional layers and respective **MaxPooling layers, Normalizing** dataset.

● Experiment on various optimizers such as **RMSprop**, **Adam,** etc. to improve testing accuracy from 0.77 by empirical learning and understand the performance on different epochs, batch size and activation functions.

● Solved similarly different types of **Binary Classification** problem such **Horses Vs Human**, Kaggle happy Vs sad emojis classification etc.

Banking Behavioural Scorecard Model | *Course Work - Project*   [Jan 2023 – *Present*]

● Built a sophisticated model to predict the customers required to pay the EMI payment at accuracy of around 85%.

● Performed data processing and **data cleaning** like null value treatment, handling object datatype and **feature selection**, splitting, and fitting data to several Machine Learning Algorithms including **Logistic Regression**, **Random Forest**, **Decision Tree**, KNN algorithm.

● Trained on 46% of the total data set and used the remaining data points for predictions based on the requirements.

Explanatory Data Analysis | *self-Learning Project*   [Dec 2022 – Jan 2023]

● Utilized Zomato dataset and found interesting insights based on geographical locations, restaurant type, mode of orders and ratings.

● Implemented **Python** and its libraries like **NumPy, pandas** and performed data cleaning, handled missing data and **outliers** in dataset.

● Plotted graphs and visualized dataset based on online vs offline order, location as per order, restaurant vs rate, outliers using **matplotlib, seaborn** python libraries.

Sorting Visualization Website | *self-Learning Project* [July 2022 – Sep 2022]
- Developed an interactive web application using JavaScript for visualization of different algorithms like **Insertion sort, Bubble sort**
- Deployed **CSS** for adding different animatic including hover effect, buttons, colour grading and visual effects for better visualization.
- Provided some features like sorting speed control factor with value slow medium fast and size range to enhance number of blocks. [**JS**]

TECHNICAL SKILLS

Programming Languages	• Python (**Passed LinkedIn Batch**), **C++, NumPy, Pandas**, **Seaborn, ML Algorithm, NLP, Deep Learning, TensorFlow.**
	• **NodeJS, MongoDB**, JavaScript, HTML – CSS ‖ **Accomplished by Self study**
Software	• Jupyter, AutoCAD, VS code, Git Hub.

INTEREST	**CP | Aptitude | Typing | Dancing | Listening Music | Badminton / Learning Guitar | Canvas**	*Major*

COURSES & CERTIFICATES

Databases and SQL for Data Science with Python | IBM [July 23`]
- Work on real world datasets for the city of Chicago in which invoke, retrieve SQL queries using Python and analysed data.
- Hands-on SQL Sub-queries and Nested Selects and some Built-in Function such as Date, time etc.
- Exercised on create table , select, insert, delete, alter, drop and more SQL statements with a live database in IBM server.

Convolutional Neural Networks in TensorFlow | Coursera [July]
- Gained understanding about Keras utilities for preprocessing image data, in particular the ImageDataGenerator class with properties and learned to plot training and validation accuracies to evaluate model performance.
- Mitigated the overfitting by data augmentation recognize impact of adding image augmentation to the training process, particularly in time.
- Master the keras layer type known as dropout to avoid overfitting
- Achieve **Transfer learning** in code using keras API from pretrained Inception Model and applied both Binary and **Multi-Class dataset**.

Introduction to TensorFlow for AI, ML and DL | Coursera [July]
- Experimented and improved prediction by including argumentation with help of ImageDataGenerator on Human Vs Horse dataset.
- Understand important concept of Deep Learning like Convolutions, pooling and their implementation by using TensorFlow.
- . Worked on some domain of computer Vision, implementing callbacks technique in TensorFlow using the MNIST Dataset.

Machine Learning with Python | VERZEO [Oct 22` - Nov 22']
- Comprehend the ML concepts including mathematics, statistics and basic Python Libraries matplotlib, pandas, NumPy.
- Hands-on various ML algorithm Kth nearest, Random Forest, Ensemble learning, Logistic Regression in python by creating models.
- Worked on data Cleaning Processes and some basic mathematical concept **NLP**.

POSITION OF RESPONSIBILITY

CHOREOGRAPHER | REFLEXOBETA CLUB IIEST SHIBPUR [July 2022 – *Present*]
➤ Worked as volunteer and coordinated one the most active club in IIEST SHIBPUR college fest, departmental activities, technical fest.
➤ Mentored more than hundred eager students in variety of dancing competitions and college-hosted events.
➤ Undertook more than ten dance sessions in every week.

VOLUNTEER | ROBIN HOOD ARMY(RHA) GAYA [Oct 2020 – Oct 2021]
The RHA is a zero fund volunteer organization that works to get surplus food from restaurants and the community to serve less fortunate people.
➤ Audited for collecting food and leading the team to succeed drive in different spots.
➤ Ranked in the poster-making team by RHA GAYA.

EXTRA CURRICULARS

- Negotiated successfully on college annual fest **REBECCA** for group dancing with the help of complete positive team ship by members.[23]
- Participated and bagged **rank 3rd in Group Dance Competition** held in IIT BHU Kashi Yatra Fest [2023]
- Solved **100+** problems in across different coding platform GFG, Leet-Code on topic include array, string , tree, stack, heap. [21– *Present*]
- Amplified **highest typing Speed 70 Wpm** in different Typing Platform like **Monkey type**, Typing.com , Typing Test [2022]
- Led and mentored a team for SPL cricket tournament and scored highest among all other teams among all teams. [2022]