

PRANAV CHAUDHARI

+919967700694

✉ pranav17502@gmail.com

in -pranavchaudhariitbombay

🌐 pranav17502

Education

Indian Institute of Technology Bombay

Nov' 20 – Aug' 23

B.Tech+M.Tech in Environmental Science and Engineering

CPI: 8.92

Technical Skills

Languages/Database: C, C++, JAVASCRIPT, Python, L^AT_EX, MATLAB, HTML, CSS, C#

Libraries: NumPy, Pandas, Matplotlib, Sklearn, Seaborn, SciPy, Keras, Tensorflow, OpenCV, Flask, Pyperclip, Rich

Software & Tools: Unity, VS Code, GitHub, AutoCAD, Visual MINTEQ, ArcGIS, EPANET

Experience

MITACS GRI' 23

May' 23 – Jul' 23

Investigation of Deep Learning Models for Hydrological Forecasting

York University, Toronto, Canada

- Conducted comprehensive **Time Series, Multivariate and Cross Correlation Analysis** of river flow, rainfall, and water quality data, namely; **pH, conductivity and DO** from multiple gauge stations along the Grand River, Ontario
- Leveraged **QGIS software** to perform sophisticated **geospatial analysis**, unravelling **spatial patterns** and **correlations** among the gauge stations, providing valuable insights into the river's dynamic behavior
- Employed **advanced LSTM models** and integrated **24, previous hours** timestamps, to predict, initially river flow and then water quality parameters namely; pH, DO and water conductivity with **lead times** ranging from 1 to 24 hours.
- Showcased expertise in **environmental data analysis**, cutting-edge **time-series forecasting**, and **geospatial methodologies**, contributing to better water resource management and sustainability practices

Curiosity Driver AR Developer | YoZu

Aug' 21 – Jan' 22

Deep-Tech startup building an AI curiosity companion to solve for curiosity in kids

IIT Bombay

- Spearheaded the seamless fusion of scientifically intricate Blender models, into an **interactive Unity3D application**
- Proficiently orchestrated model integration with **C# scripts for user interaction**, while intricately refining lighting nuances, culminating in an **engaging augmented reality** encounter that captivated 8th-grade students' inquisitiveness
- Skillfully integrated **augmented reality interactions through the smartphone camera**, resulting in an immersive Deep-Tech solution which eventually brought eighth-grade science textbook experiments vividly to life

Key Projects

File Compressor and Decompressor | C++, [Git](#)

May' 23 – Jul' 23

- Implemented file compression-decompression tool **using C++ and Huffman coding** algorithm for reducing file sizes
- Engineered a custom **Min Heap (priority queue)** data-structure to construct & maintain **Huffman trees** efficiently
- Built proficiency in working with **binary files and I/O operations**, enabling seamless compression-decompression

CodeCipher Keeper: Password Manager | Python, [Git](#)

Jul' 23 – Aug' 23

- Developed **Python-based** password manager **with MySQL** integration to securely store and manage credentials
- Designed an intuitive **command-line interface (CLI)** for user interaction, enhancing user-friendliness and ease of use
- Enabled users to **add, search, and retrieve** entries using a variety of parameters such as **site name, site URL, email, and username** with integration of **Rich library** to present results in a visually appealing **tabular format**
- Utilized **Crypto libraries** for key derivation & **AES encryption** & implemented secure **copying feature** using the **Pyperclip library** to copy decrypted passwords to the clipboard while maintaining data confidentiality

Socio-Economic Voting Patterns: An ML Approach | ML, Google Colab, [Git](#)

May' 22 – Jun' 22

- Predicted the political party of the taxpayer using various ML models on the **socio-economic features of the public**
- Conducted extensive **exploratory data analysis** and **feature engineering** to inform **precise model selection**
- Employed a diverse set of ML algorithms (**logistic regression, SVM, KNN, random forest, MLP**) and **fine-tuned hyperparameters** using **GridSearchCV**, resulting in optimized political party preference predictions.
- Demonstrated expertise in data preprocessing, model evaluation, and result interpretation, leading to successful implementation of robust ML solution for predicting political affiliations based on socio-economic factors

WeatherNet: Deep Learning for Weather Image Classification | DL, Google Colab [Git](#)

May' 22 – Jun' 22

- Processed the image dataset and **classified it into 5 types** with the help of **Convolutional Neural Networks**
- Developed a **weather image classification** system using Neural Networks, **achieving 83% accuracy**
- Conducted comparative analysis of **CNN models (VGG16, ResNet50, ResNet101)** for optimal performance
- Utilized **OpenCV library** for image processing and performed exploratory data analysis to gain valuable insights