



## EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2024	M.TECH	IIT Kharagpur	9.33 / 10
2021	B.E in Civil Engineering	Savitribai Phule Pune University	9.29 / 10
2018	Diploma in Civil Engineering	AISSMS Polytechnic	82.00%
2015	CBSE	Kendriya Vidyalaya Army Area, Pune	7.60 / 10

## INTERNSHIPS

### Evaluation of a high-resolution numerical ocean model of the Arabian Sea using satellite and in-situ observation Space Applications Centre, ISRO | Xarray | CDO | Basemap | Pandas | Numpy | Matplotlib | Summer 2023

- A **2km high-resolution** Arabian Sea model was setup for the very first time, configured for the year 2018 and featuring a temporal resolution of 1 day.
- Model's surface (SST, salinity, currents, sea level) and sub-surface parameters were validated by **remapping** the resolution to their resp. datasets.
- Statistical metrics such as RMSE, Standard Deviation, Correlation, R2 score, and their corresponding plot comparisons were done on a workstation.
- Among the parameters, SST exhibited superior performance, displaying an RMSE of **0.54** and an overall strong correlation of **0.98** in most of the regions.
- However, the model's performance near the **Somalian** region was unsatisfactory, and high errors were observed during the **monsoon** season.

## PROJECTS

### AI/ML techniques for interpolation/downscaling of ocean observations in coastal regions | *Research areas in Space 2023, ISRO* M. Tech Project | Prof. Mihir Kumar Dash | Machine Learning | Artificial Intelligence | Linear Reg. | Lasso | Elastic Net | CNN | Pursuing

- To overcome the problem of unavailability of altimeter data near the coast, AI/ML based techniques are required for data retrieval.
- Techniques using linear regression, lasso, elastic net for prediction and CNN for downscaling will be developed by making use of numerical models and tide gauge stations. This is an important activity which will further help identification of vulnerable zones in the climate change scenario.

### Diamond Price Prediction | MLops | Flask | Packaging | Git | Spring 2023

- Designed and developed scalable and flexible end to end machine learning pipeline using MLops which can include multiple models for prediction.
- Predicted price is obtained based on the model having the highest R2 score, followed by a prediction pipeline API created using Flask for the end users.

### Uber Data Analytics | Data Engineering | Mage | Google Big Query | Looker Studio | Spring 2023

- The ETL pipeline was implemented on Mage (an open-source data pipeline tool) which was deployed on VirtualBox as an alternative to compute instance.
- Uber data was extracted to the pipeline through a cloud API, underwent transformations into fact and dimension format in Mage.
- The data model was loaded into Google BigQuery for analytical processing. It was then exported to Looker Studio to create interactive dashboards.

### Telegram URL Shortener Bot | Pyrogram | pyshorteners | aiohttp | Autumn 2022

- The bot is written in python based on is.gd and v.gd APIs having shortening services with custom URL facility using Pyrogram and aiohttp framework.
- Telegram's messaging history serves as a means to store links as messages for future access, a feature not offered by services like is.gd or v.gd.

## PUBLICATIONS

**B.K. Pandit**, N. Agarwal, et al. | A high-resolution numerical ocean model of the Arabian Sea: Evaluation using satellite and in-situ observations | Ongoing

## COMPETITION/CONFERENCE

**OSICON-23** | Abstract published in "OSICON 2023 Conference Proceedings" for eighth national conference of Ocean Society of India at INCOIS, Hyderabad.  
**Winner** | Won the **1st** price for poster presentation under the scheme "Ocean Modelling and Data Assimilation" at OSICON-23.

## SKILLS AND EXPERTISE

**Languages and DBMS** - Python, SQL, MySQL

**Packages** - NumPy, Pandas, Scikit-learn, Xarray, Tensorflow, Matplotlib, Seaborn, Basemap, Cartopy

**OS and Software** - Windows, Linux, Git, Excel, PowerPoint, Word, Adobe Photoshop, Adobe Illustrator

**Soft Skills** - Leadership, Teamwork, Creativity, Fast Learner, Multitasking, Time management

## COURSEWORK INFORMATION

Data Analytics in Earth System Science | Statistical and Machine Learning Methods in Water Resources Engineering | Computational Methods | Design Lab  
Atmospheric Dynamics | Carbon Cycle and Global Climate Change | Satellite Remote Sensing | Global Climate System and Cloud Precipitation Processes

## CERTIFICATIONS

**Elements of Data Science** | Machine learning: Data Processing and Feature Engineering; Model Training, Tuning; Model Evaluation and Productionizing.

**Python for Data Analysis & Visualization** | Data Analysis and Visualization libraries in Python: Numpy, Pandas, Matplotlib, Seaborn, Plotly+.

**SQL and MySQL** | SQL Syntax with MySQL Workbench, SQL Queries, Normal forms, Datatypes, etc.

**Crash Course on Python** | Fundamentals of python programming authorized by Google.

## POSITIONS OF RESPONSIBILITY

**Technology Secretary | Design Team Head | Lal Bahadur Shastri Hall of Residence**

Redesigned the official logo for the hall | Coordinated with Technology Students' Gymkhana for managing Open IIT, GC and Inter IIT tech events at Hall level

## AWARDS AND ACHIEVEMENTS

Obtained an All India Rank of **2229** in GATE 2022 with a percentile of **97.77** among a total of 0.1 million participating students.

**Gold Medalist** | Secured first position in every semester of both B.E Civil Engineering and Diploma in Civil Engineering.

## EXTRA CURRICULAR ACTIVITIES

Represented CORAL as Academic Unit Representative at Academia-Industry Conclave 2023 to showcase different domain expertise of the centre.

Music Production | Produced different genres of Electronic Dance Music using digital audio workstation along with audio visuals.