Vihang Puranik
Pune, Maharashtra, India LinkedIn Profile: Vihang Puranik
Email-id : **vspu4299@gmail.com** Mobile No.: **+91-7447757118**

ACADEMIC DETAILS

Examination	University	Institute	Year	CGPA/%
B.Tech *Mechanical Engineering*	IIT Dharwad	IIT Dharwad *Mentore-IITB*	2017-21	8.18/10
Class XII *Computer Science*	Late P. B. Jog Jr. College	Maharashtra State Board	2016	81.08%
Class X	Jnana Prabodhini Prashala	CBSE	2013-14	10.00/10

FIELDS OF INTEREST

- Machine Learning, Deep Learning, Predictive Data Modelling, Data Analysis

TECHNICAL SKILLS

- **Programming Languages** Python (5* Rating on Hackerrank), C++, MATLAB
- **Programming Libraries** OpenCV, Tensorflow, Keras, scikit-learn, PyTorch, numpy, Flask, pygame, opengl(C++)
- **Database Management** MySQL, SQLite
- **Tools** SAS, Tableau, Spark, Docker, Google Cloud, PowerBI

COURSES

- **Relevant Institute Courses**
  Calculus, Linear Algebra, Differential Equations, Data Analysis, Computer Graphics, Deep Learning, Machine Learning
- **Online Courses from Coursera**
  Professional Certification: SAS Visual Business Analytics
  Specializations Certification: Deep Learning, Reinforcement Learning, Tensorflow in Practice, Discrete Mathematics
  Courses: Intro to Graph Theory, Natural Language Processing, Data Structures and Algorithms

SCHOLASTIC ACHIEVEMENTS

Year	Achievement	Score	Academic Rank
2017	JEE Advanced-MAINS	AIR 99.9%ile	Class XII
2014	National Talent Search Exam (NTSE)	Scholarship and AIR in top 1000	Class X
2018	MENSA IQ Test (SD 15 Stanford Binet)	153 IQ (99.98%ile Score)	2nd Year UG

MAJOR PROJECTS AND INTERNSHIPS

- **Deep Learning** (Course Project)
  (Guide: Prof. S R Mahadeva Prasanna, Jan'20 - May'20)
  - Develop an artificial neural architecture to implement textual style transfer.
  - Just like every painter of a painting who has their own painting style, every author has a specific set of words/phrases they use or don't. Using this neural network, we try to convert a modern text to seem like it has been written by Shakespeare. Also, implemented GRUs to replicate the specific style.
  - Used TensorFlow with Keras and implemented the model using python.
- **Machine Learning** (Course Project)
  (Guide: Prof. S R Mahadeva Prasanna, Aug'20 - Dec'20)
  - Develop a Recommendation System for movies based on the MovieLens 1M data set.
  - Implemented various models based on collaborative filtering and content based filtering. Used methods such as matrix factorization and KNN algorithms in alternative approach.
  - Also made a new system which would scrape IMDB data from web to recommend the movies for users who have watched movies outside of the database.

- **Simulation of a Dynamic Model of a Vehicle** (B.Tech Project)
  (Guide: Prof. Sangamesh Deepak R, Aug'20 - Dec'20)
  - Modelling of a vehicle as an independent entity using the CARLA simulator and Python
  - Implemented the longitudinal and lateral models of the vehicle to track the path traversed as well as to control the throttle and steer to follow a trajectory.

- **PARI Robotics** (Summer Internship)
  (Guide: Mr. Aditya Joshi, June'19 - July'19)
  - Worked on automation of assembly line for Ford Motors:
  - Worked on training the FANUC R-2000iC robot to distinguish between different types and sizes of gears to organize them to ease their arrangements.
  - Worked on a KUKA Robot to use the nut-runner on the gearbox casing by training it to recognize the relevant area, its orientation and evaluate whether the piece is to be rejected.

- **Semantic Segmentation of Satellite Images** (Inter IIT Tech Meet 2019, IIT Bombay)
  (Aug'18 - Dec'18)
  - From the given set of 14 Satellite images in 4 channel TIFF format, applied data augmentation methods to increase the number of images to be used as data-set.
  - Implemented U-net architecture along with a hybrid combination of RESNET to successfully classify the types of land-forms such as road, rivers, ocean, buildings, forests, parks etc.

- **Sentiment Analysis of Text** (Project)
  (Apr'20)
  - Implemented models for detecting the emotions and sentiments as well as the topic of the sentence (even though not mentioned explicitly) expressed in the form of tweets.
  - Implemented RNNs, LSTMs, and also Siamese networks to compare meanings with the corpus. Implemented GLoVE and TF-IDF to compare the individual words to tokenize and gain understanding of the input tweet.

- **Attention models in Natural Language Processing** (Project)
  (May'20 - Aug'20)
  - Created a chatbot to identify the sentiment and respond accordingly to the user. Built using Reformer model on top of T5 and BERT for question answer duels.
  - Used Encoder Decoder Attention models to translate German and English sentences.

- **Traffic Sign Detection and Identification** (Project)
  (May'20)
  - Implemented YOLOv3 to detect the location of a traffic sign in the given frame/image.
  - Implemented a CNN to identify the meaning of the traffic sign - whether it says speed limit, stop and so on.

- **AI for Medical purposes** (Project)
  (Mar'20 - Aug'20)
  - Analyzed X-rays images of chest to identify the abnormalities and detect the ailments such as Covid-19 and Pneumonia using Res-Net and U-Net for analysis.
  - Also made a detector for Brain Tumour based on the data set of Brain Scan images to identify the regions of interest and danger.
  - Made a crawler based on NLP to identify the defects and suggest solutions based on the radiology report of a patient.

- **Web App for Share price prediction** (Project)
  (May'20 - Jun'20)
  - Created a web application based on Flask using python to analyze the data of stock prices for a particular establishment using the live data from stock exchanges to predict the future ups and downs.
  - Used machine learning techniques such as regression and time series analysis using sci-kit learn library and implement Hidden Markov Models to predict the closing price. Used matplotlib and seaborn for visualization.

POSITIONS OF RESPONSIBILITIES

- President, Robotics Club, IIT Dharwad:
  Increased the participation of students by 150%. Organized 2 Industrial Seminars and 3 Intra-Institute Competitions.
- Organizer, PARSEC 2020 : Technical Fest of IIT Dharwad:
  Lead the event development for the Inaugural technological fest of IIT Dharwad. Managed 2 events which combinedly saw a participation of over 120 teams from all over the country.
- Financial Manager, IIT Dharwad Clubs, IIT Dharwad:
  Handles the Student Gymkhana management budget for whole institute by allocating the funds to all the clubs and their activities for the Financial Year 2018-19.

Extracurricular Skills

Languages:
English (Full Professional Proficiency) German, Spanish, French (Basic Proficiency)
Hindi, Marathi (Native)