



# Vaibhav Arora

Roll No.:12041650

B.Tech - Computer Science and Engineering

Minor in Data Science and Artificial Intelligence

Indian Institute Of Technology, Bhilai

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## EDUCATION

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B.Tech. Major	Indian Institute of Technology, Bhilai	8.90 (Current)	2020-Present
Senior Secondary	CBSE Board	97%	2020
Secondary	CBSE Board	91%	2018

## TECHNICAL SKILLS

- **Programming Languages:** Python , C/C++, Bash, SQL
- **Software Skills:** Numpy, Pandas, Flask, Django, Tensorflow, Pytorch, Pytorch-geometric, DGL, sklearn, matplotlib, plotly, seaborn, BeautifulSoup, InfluxDB, MySQL, Neo4j, Git, Telegraf, Lex, Yacc, OPEN-CV, SimpleITK, Keras, Dash, networkx, Sagemath, Pycryptodome, Gurobipy, Galois, Latex, Nltk, NS-3, Wireshark, imbalance-learn, Tkinter, Pillow, Tensorboard, librosa

## PROJECTS UNDERTAKEN

- **Multivariate Time Series Anomaly detection system for Bhilai Steel Plant**  
*under Dr. Gagan Raj Gupta*
  - Performed Exploratory Data Analysis on the multivariate Time Series from IoT signals and Video Feed
  - Implemented LSTM, MCUSUM and PCA to perform baseline Anomaly detection
  - Implemented KLL summarization algorithm for streaming data to estimate the distribution of Time Series data
- **Wikipedia Graph Analysis**  
*DS-250 course project*
  - Scraped relevant textual data from Wikipedia to extract NLP features from Web-graph
  - Performed stemming, lemmatization and extracted NLP features such as TFIDF vector for nodes in the Web-graph
  - Trained GNN model to predict the hardness nodes to perform a heuristic walk for JEE Advanced Preparation
- **Fraud detection using Graph Neural Networks**  
*IBITF, IIT Bhilai*
  - Performed Exploratory Data Analysis on the Elliptic Bitcoin Dataset using networkx and Neo4j
  - Studied and Implemented research papers such as EvolveGCN and ClusterGCN to make baseline prediction
  - Implemented Graph Attention to improve baseline results
- **Prostate Cancer Detection**  
*CS 550 course*
  - Implemented baseline U-Net architecture for baseline predictions
  - Implemented Multimodal Attention U-Net to improve baseline results
  - Generate Saliency maps to explain results
- **Socket Programming Mini-projects**  
*CS 300 course*
  - Implemented dual stack IPv4-IPv6 socket
  - Implemented file sharing scripts between clients
  - Implemented Federated Learning with two clients using Sockets and sklearn

## ON-GOING PROJECTS

- **Incentivized decentralized competitive coding platforms**  
*under Dr. Subhjit Sidhanta*
  - Implemented peer-to-peer competitive coding platform over intranet
  - Devised the concept of hash-based proof of execution
  - Performed fault analysis on the system model
  - Currently publishing a research paper

## EXPERIENCE

- **Teacher's Assistantship**  
*CS 102, IIT Bhilai*
  - Assited Dr. Amit Kumar Dhar in the teaching Data Structures at IIT Bhilai
  - Coached and clarified students' doubts pertaining to the course and exam
  - Evaluated the students and gave individual feedback

## KEY COURSES TAKEN

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- **Advanced Machine Learning:** : A+
- **Machine Learning:** : A+
- **Natural Language Processing:** : A
- **Data Structures:** : A
- **Distributed Systems:** : A
- **Computer Networks:** : A-
- **Cryptography:** : A-

## ADDITIONAL/CO-CURRICULAR ACTIVITIES

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| • <b>CS Department Representative</b> , Students' Senate, IIT Bhilai         | <i>April 2023 - Present</i> |
| • <b>Core Member</b> , DSAI Club, IIT Bhilai                                 | <i>Jan 2023 - Present</i>   |
| • <b>Member</b> , DesignX Club, IIT Bhilai                                   | <i>Nov 2020 - Mar 2022</i>  |
| • <b>Core Member</b> , Epsilon Club, IIT Bhilai                              | <i>Mar 2021 - Mar 2022</i>  |
| • <b>Member</b> , Managing Committee, Council of Student Affairs, IIT Bhilai | <i>Mar 2021 - Mar 2022</i>  |

## ACHIEVEMENTS

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| • <b>Gold Medal</b> , @ Inter IIT Tech. Meet 11.0, Kannpur                     | <i>2023</i> |
| • <b>IBITF Fellowship</b> , for Fraud Detection using GNN in Fin-Tech          | <i>2022</i> |
| • <b>First position</b> , @Infineon Hackathon for Image Clustering             | <i>2022</i> |
| • <b>Cleared JEE Advanced</b> , Achieved rank <b>5845</b> in first attempt     | <i>2018</i> |
| • <b>Cleared JEE Mains</b> , Achieved <b>99.03</b> percentile in first attempt | <i>2018</i> |