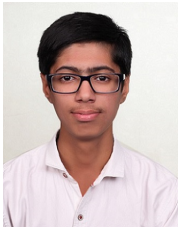

Vaibhav Arora

Roll No.:12041650
B.Tech - Computer Science and Engineering
Minor in Data Science and Artificial Intelligence
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Education

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B.Tech. Major	Indian Institute of Technology, Bhilai	8.88 (Current)	2020-Present
B.Tech. Minor	Indian Institute of Technology, Bhilai	10.00(Current)	2022-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, plotply, 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
- **Operating Systems**: Windows, Linux

** Intermediate proficiency*

Personal projects

- **Multivariate Time Series Anomaly detection system for Bhilai Steel Plant** *February, 2023 - April, 2023*
  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** *February, 2023 - April, 2023*
  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** *February, 2023 - April, 2023*
  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** *February, 2023 - April, 2023*
  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

- **Iterated prisoner's dilemma simulation** *February, 2023 - April, 2023*
  CS 518 course
  – Engineered simulation objects for Iterated Prisoners dilemma
  – Devised genetic algorithm based approach using only 3-bits per genome
  – Won the batch contest against other variants created by batchmates

- **Network Analysis and simulations using Wireshark and NS-3** *February, 2023 - April, 2023*
  CS 300 course
  – Performed packet sniffing using wireshark and studied core networking phenomenon
  – Simulated peer-to-peer clients over NS-3 to study effects of bandwidth change, packet loss etc.
  – Used tools such as nmap, nslookup and dig to inspect global network configuration and port services of poular websites

- **Socket Programming Mini-projects** *February, 2023 - April, 2023*
  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

- **Non-IID Federated Learning for GNNs with Structural Knowledge Sharing** *February, 2023 - April, 2023*
  under Dr. Gagan Raj Gupta
  – Investiaged approach presented by FedStar to utilize strucural features for non-IID graph classification
  – Implemented FedStar-based node classification model for node classification of ogbn datasets
  – Working on finding novelties to beat state-of-art model

- **Incentivized decentralized competitve coding platforms** *February, 2023 - April, 2023*
  under Dr. Subhajit 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** *February, 2023 - April, 2023*
  CS 102 course Indian Institute of Technology, 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

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

Additional/Co-curricular Activities

- **CS Department Respresentative**,Students' Senate, IIT Bhilai *April 2023 - Present*
- **Core Member**,DSAI Club, IIT Bhilai *Jan 2023 - Present*
- **Member**,DesignX Club, IIT Bhilai *Nov 2020 - Mar 2022*
- **Core Member**,Epslion Club, IIT Bhilai *Mar 2021 - Mar 2022*
- **Member**,Managing Committee, Council of Student Affairs, IIT Bhilai *Mar 2021 - Mar 2022*

Achievements

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