Vikram Waradpande

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Education

BITS, Pilani, IN – B.E. Computer Science (Expected 2020)
CGPA : **9.20/10**

BITS, Pilani, IN – M.Sc. Mathematics (Expected 2020)
CGPA : **9.20/10**

Experience

SUMMER ANALYST, GOLDMAN SACHS
Bengaluru, IN, May. 2019 - July 2019

- I worked in the securities technical team at Goldman Sachs to build a **web application** for trade monitoring using the very widely used framework **React.JS**.
- Also studied and analysed to draw trends from trade data. This was done to build a **mathematical model** for **market impact** of portfolio orders.

SOFTWARE ENGINEERING INTERN, MICROSOFT IDC
Hyderabad, IN, May 2018 - July 2018

- Worked in the **BING research team** on Microsoft's **knowledge graph** on entity classification problem.
- Improved precision and recall for high-ranked entities using their textual description with the help of **Machine Learning, NLP** and **Deep Learning** techniques.
- Languages and technologies used: **Python, C#, TensorFlow, PyTorch, scikit-learn**.

SUMMER RESEARCH INTERN, IIRS
Dehradun, IN, May 2017- July 2017

- Worked in the **Photogrammetry and Remote Sensing Lab** at **Indian Institute of Remote Sensing** under mentorship of Prof. Shashi Kumar
- Developed a tool for automatic calibration of Synthetic Aperture Radar satellites using datasets provided by European Space Agency (ESA). Also developed an end-to-end pipeline for calibration.
- Languages and technologies used: **Python, NumPy, SciPy**

TEACHING ASSISTANTSHIPS
OOP Lab, BITS Pilani, IN, Aug. 2018 - Dec. 2018

- Taught **Object Oriented Programming** (OOP) to sophomores as a part of the course **CS F213** under guidance of Prof. Jennifer Ranjani.

N.N.F.L. , BITS Pilani, IN, Jan. 2019 - Present

- This assistantship included conducting workshops, setting assignments and evaluating code for implementation projects for the course on **Neural Networks and Fuzzy Logic (NNFL)** under Prof. Surekha Bhanot.

Research

RESEARCH ASSISTANT, L3S, LEIBNIZ UNIVERSITÄT HANOVER

Hanover, Germany, August. 2019 - Present

- Currently working as an undergraduate research assistant under Prof. Avishek Anand at the L3S Research Lab, LUH on a project titled "**Deep Learning on Graph Structured Data**".
- The project is aimed at using representation learning algorithms on graphs to optimise and enhance efficiency of **reinforcement learning tasks**. The project also aims at finding **task-specific embeddings** of graphs into lower dimensional vector spaces.

RESEARCH ASSISTANT, ADAPT LAB

BITS Pilani, Aug. 2018 - May 2019

- I worked as a research assistant in the Advanced Data Analytics and Parallel Technologies Lab at my university under Prof. Shan Balasubramaniam and Prof. Navneet Goyal. My work was aimed to develop and implement **parallel graph clustering algorithms.**
- Worked on **hierarchical divisive algorithms** and their efficient parallelisation. Implemented and improved algorithms like the Lenzen-Peleg algorithm in **distributed memory** architecture. Also added support for these algorithms in a custom **DSL for automatic parallelisation and optimisation** of clustering algorithms called DWARF, completely developed in the lab.

Key Projects

BREAST CANCER PREDICTION, Data Mining

Mentor: Prof. Yashvardhan Sharma

- Used Machine Learning algorithms like **KNN, SVM, Decision Trees** in **Python** to predict the possibility of breast cancer, from physical features. Dataset was acquired from UCI Wisconsin.
- Used ensemble techniques like **Bagging, Boosting** and **Random Forest** to improve precision and recall of the classification. Also using feature selection, identified the attributes with the most predictive power.

BCI - TYPING THOUGHTS, Neural Networks and Fuzzy Logic

Mentor: Prof. Surekha Bhanot

- Implemented the research paper "Converting Thoughts to Text: Deep Feature Learning of EEG Signals" [Zhang X. et. al.] to develop an understanding and get a practical experience in **Recurrent** and **Convolutional Neural Networks**.
- Reduced the forward pass time for classification so as to be useful in **real-time systems** by changing the neural architecture for BCI. Also, worked on **detecting finer intents** from EEG signals so as to make it scalable.

SVD, LRA and GRAPH CLUSTERING, Graphs and Networks

Mentor: Prof. Rajiv Kumar

- Worked on **Graph Clustering** and **Low Rank Approximation** using the **Singular Value Decomposition**.
- Implemented research papers on **discrete, continuous and randomised** graph clustering algorithms in **Python**.

Selected Coursework

Computer Science

- Data Mining
- Neural Networks and Fuzzy Logic
- Data Structures and Algorithms
- Database Systems
- Object Oriented Programming
- Logic in Computer Science
- Cryptography
- Operating Systems

Mathematics

- Probability and Statistics
- Graphs and Networks
- Optimisation
- Operations Research
- Discrete Mathematics
- Topology
- Advanced Algebra
- Real Analysis

Skills

Programming

C, C++, Python, Java, MATLAB, JavaScript
Shell, Node.Js, SQL, C#

Tools

Git, NumPy, TensorFlow, PyTorch, NLTK,
Keras, IBM SPSS

Achievements

- Achieved **99.99 percentile** among **13 million** students in the **JEE** (Joint Entrance Exam) - 2015.
- Currently ranked **2nd** in my department of 70 students and in **top 15** overall in my batch of **1100** students.
- Recipient of university's **MCN scholarship** since each of the last **six semesters** for excellence in academics.
- Recipient of **Reliance Scholarship** for **best leaving student** in 12th grade for scoring **96.3%** marks.
- Among **top 1%** students of the country in National Standard Examination - **Junior Science Olympiad 2013.**