



# Vikram Waradpande

[wwik.github.io](http://wwik.github.io) | [github.com/WVik](https://github.com/WVik) | [f2015454@pilani.bits-pilani.ac.in](mailto:f2015454@pilani.bits-pilani.ac.in)

## 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

### UNDERGRADUATE RESEARCHER, ADAPT LAB

**BITS Pilani, Aug. 2018 - Present**

- I currently work as a research assistant in the Advanced Data Analytics and Parallel Technologies Lab at my university under Prof. Shan Balasubramaniam.
- My work is on parallelisation of divisive graph clustering algorithms as well as the development of an in-house DSL (DWARF) for automated parallelisation and optimisation of graph algorithms.

### 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 ASSISTANT, OOP LAB

**BITS Pilani, IN, Aug. 2018 - Present**

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

# 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.

## 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**.
- Studied dominant sets and clustering based on **dominant sets** in graphs.

## BCI - TYPING YOUR 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.] as a part of the course BITS F321 to develop an understanding and get a practical experience in **Recurrent** and **Convolutional Neural Networks**.
- Working on reducing the forward pass time for classification so as to be useful in **real-time systems** by changing the neural architecture for BCI. Also, analysed the possibility of **detecting finer intents** from EEG signals so as to make it scalable.

# 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
- Digital Design

## Mathematics

- Probability and Statistics
- Graphs and Networks
- Optimisation
- Operations Research
- Discrete Mathematics
- Topology
- Advanced Algebra
- Real Analysis
- Functional 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 **2<sup>nd</sup>** 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 12<sup>th</sup> grade for scoring **96.3%** marks.
- Among **top 1%** students of the country in National Standard Examination - **Junior Science Olympiad** 2013.