



karthikeya reddy konda
Computer Science & Engineering
Indian Institute of Technology, Bombay

190050060
B.Tech.
Gender: Male
DOB: 21-11-2001

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2023	

Pursuing a **Minor in Physics** and **Honor in Computer science**

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 63** in **JEE Advanced** out of 2,45,000 candidates (2019)
- Secured **All India Rank 252** in **JEE Main** out of 9,35,000 candidates (2019)
- Secured **All India Rank 34** in JEE Main Paper 2 out of 1,70,000 candidates (2019)
- Secured **Rank 42** in **TS EAMCET** among 1.4 lakh students organised by Govt. of Telangana (2019)
- Awarded Certificates of Merit for being in **National top 300** in **NSEP** (National Standard Examination in Physics) and **NSEA** (National Standard Examination in Astronomy) (2018)
- Qualified for **INChO** (Indian National Chemistry Olympiad) among **top 300** students in India (2018)
- Awarded the prestigious **KVPY** (Kishore Vaigyanik Protsahan Yojana) Fellowship by **DST**, Govt. of India (2018)
- Qualified for **INMO** (Indian National Mathematics Olympiad) among **top 30** students in Telangana state (2015)

KEY PROJECTS

2D Floor Plan analysis

Summer 2021

Ultratech Cement Pvt. Ltd. | Analytics Internship

Virtual

- Developed **machine learning model** and analytical programs for the purpose of **automatic** material quantity estimation in a 2D floor plan .
- Used **image segmentation** techniques and developed a **custom U-Net** model using **tensorflow**, **keras** to estimate the area of walls in a rasterized floor plan image. Trained on custom prepared **dataset** .
- Developed deterministic algorithms in python to **estimate** wall area, perimeter (external and internal), built up area with **high precision**, by using object data extracted from the CAD file .

Dictionary Learning Research

Spring 2021

Prof. Ajit Rajwade (Advanced Image processing) | Course Project

IIT Bombay

- Implemented **Compressive KSVD** algorithm in **MATLAB** to learn dictionary atoms directly from the compressive measurements .
- Extending the algorithm to aid in signal reconstruction and **compressive classification** of handwritten digits .
- Ran experiments with variation of Reconstruction error, number of correct detected atoms by the **Compression ratio** . Also evaluated accuracy in presence of noise .

Online Competing and Development Environment (OCD-E)

Autumn 2020

Prof. Amitabha Sanyal (Software Systems) | Course Project

IIT Bombay

- Developed an **OCD-E** that gives users the functionality of creating and saving files, folders or project directories, compiling and executing them .
- Using **Django** and **SQL database** for efficient and secure management of user data and other information .
- Adding support for languages such as **C/C++**, **Java**, **Python** including commonly used **libraries** and **packages**
- Capable of managing **directory**, interdependent programs, input and output .

Quad Tree

Autumn 2022

Prof. Ajit Diwan (Data structures and algorithms) | Course assignment

IIT Bombay

- Developed the quad tree data structure used for efficiently **storing sparse binary matrices** or binary pixel images.
- Implemented basic features such as set and get the pixel, copying . Also developed algorithms for binary operators such as XOR, AND, OR of these data structures .
- Designed and implemented algorithms for efficient **compression** of such image and **extraction** of sub matrix or part of the image .

TECHNICAL SKILLS

Programming	Python, C++, Java, Bash, Sed, Awk, SQL, VHDL
Data Science	Tensorflow, keras, Numpy, SciPy, Matplotlib
Web Development	HTML, Django, Angular, CSS
Software	Git, MATLAB, L ^A T _E X, AutoCAD, Quartus

OTHER PROJECTS

- **Hand written digits recognition:** Implemented neural network with Back propagation algorithm in MATLAB with 95% accuracy on a subset of **MNIST data** . *(Online Course assignment)*
- **Anomaly detection:** Built an anomaly detection system for server computers by fitting multivariate gaussian function on various features such as latency, throughput etc.. *(Online course assignment)*
- **16 bit Processor:** Implemented a 16 bit CPU capable of performing instruction set such as adding, subtracting, read and write operations in **VHDL** . Simulated in Quartus . *(Prof. Virendra Singh | Course project)*
- **Image compression** : Used **Kmeans++** algorithm from python SciPy to compress the image pixels into k group of colours . Also used **PCA** for the same task . *(Prof. Amitabh Sanyal | Course Assignment)*
- **Slider Puzzle Solver:** Implemented a general slider puzzle solving algorithm (n by n board) by using various notion of distance to goal board, **A* Search Algorithm** and priority queues . *(Online Course Assignment)*
- **Language Processing:** *(Self Project)*
 - **Sentiment Analysis:** Developed a **Recurrent Neural Network** (RNN) and word embedding based sentiment classifier (positive or negative) in tensorflow, keras. Trained on **IMDB** movie reviews dataset .
 - **Text Generation:** Developed text generation RNN (**LSTM**) model . Trained and tested it on dinosaur names.

POSITION OF RESPONSIBILITY

Teaching Assistant

PH107 - Quantum Physics and Application | Prof. C.V. Tomy

Spring 2021

IIT Bombay

- Was among 36 students selected for teaching assistant role to a class of **1400 1-st year students** .
- Monitoring weekly quizzes for a batch of 40 students, handled their doubts and marks related grievance .

COURSES UNDERTAKEN

Computer Sc.	* Artificial intelligence and Machine learning , * Foundations of Intelligent and learning agents , * Operating Systems , *Introduction to Blockchains, Cryptocurrencies and Smart Contracts, *Computer Architecture, Advanced Image Processing , Computer Networks , Digital Logic Design, Design and Analysis of Algorithms, Logic for Computer Science, Data Structures and Algorithms, Computer Programming and Utilization
Maths	Discrete Structures, Data Analysis and Interpretation, Calculus, Linear Algebra
Others	Philosophy, Quantum Physics and Application, Classical Mechanics, Basics of Electricity and Magnetism , Introduction to Electrical and Electronics Circuits, Physical Chemistry, Organic and Inorganic Chemistry, Biology

* to be completed by November 2021

EXTRA-CURRICULAR

- Participated in **Codeforces** Coding contests, have a max rating of **1667** (dark blue) .
- Completed a year long training of **Guitar** under National Sports Organization (NSO), IIT Bombay . *(2019)*
- Attended **Vijyoshi 2018** camp, a national level science camp conducted by **Iisc Bangalore** by presenting pilot lectures by leading researchers .
- Hobbies include Video Gaming, Table Tennis, reading classic literature books .