Kuchipudi Rahul Deepak
Computer Science & Engineering
Indian Institute of Technology Bombay

210050090
B.Tech
Male
DOB: 12/12/2004

Examination	University	Institute	Year	CPI/%
Graduation	IIT Bombay	IIT Bombay	2025	
Intermediate/+2	BIE, Andra pradesh	Sri chaitanya Co-ED junior college	2021	97.4
Matriculation	BSE, Andra Pradesh	Sri Chaitanya High School	2019	10

Scholastic Achievements

- Secured **All India Rank 157** in **JEE-Main** out of 1million candidates *(2021)*
- Secured **All India Rank 709** in **IIT JEE-Advanced** out of 1,50,000 candidates *(2021)*
- Achieved a **Rank of 148** in AP EAMCET(conducted by APSCHE) in 1,66,000 candidates *(2021)*
- Achieved a **Rank of 346** in TS EAMCET(conducted by TSCHE) in 1,21,000 candidates *(2021)*
- Recipient of **National Talent search Scholarship** by NCERT, Government of India *since (2019)*

Key Projects

Precancerous Lesion Detection using AI/ML | Course Project *(Autumn 2023)*
Guide: *Prof. Preethi JyothiArtificial Intelligence and Machine Learning* *IIT Bombay*

- Implemented **semi-supervised Mixmatch Algorithm** to label different images of skin cancer into 7 types
- Utilised a **large tailed dataset**HAM10000 consisting of 10000 images to train the model.
- Performed **Hyper parameter tuning** for a set of different parameter values to increase the test accuracy.
- Achieved an **accuracy of 69%** using the MixMatch algorithm, 4% higher than the supervised model

Rail planner | Course Project *(Aug'22 - Nov'22)*
Guide: *Prof.Supratik Chakraborty* | *Data structures and Algorithms Lab* *IIT Bombay*

- Used Data structures like **Trie, Dictionaries, + Heaps and trees** to develop the Rail planner
- Made a search bar using **KMP(Knuth–Morris–Pratt) algorithm** to find the train stations
- Implemented **compressed Tries** to get better sorted reviews about various trains for the passengers.
- Sorted the reviews to ease the process by using **Priority queues** by **Heapify** and **Del-Min process**

Fast Chat | Course Project *(Spring 2022)*
Guide :*Prof. Kavi Arya* | *Software Systems Lab* *IIT Bombay*

- Created a Group Chat which can share both **Text** and **Images** using **Socket Programming** in python
- Integrated a **PostgreSQL** database into the chat, enabling storage of message history and user information.
- Implemented **Load balancing of servers** to create multiple servers in order to increase the efficiency
- Used **authlib** for Authentication, to make a simple Login page for quick and hassle-free registration.

IPCP Data prefetching for SAT solvers | Course Project *(Spring 2023)*
Guide: *Prof. Biswanadan PandaComputer architecture and Design* *IIT Bombay*

- Modified the IPCP prefecture to increase the performance and **hit rates** for the set of SAT traces.
- Analysed various sets of Traces using the IPCP prefecture to identify the areas for cache improvement.
- Improved IPC for various traces by 2-5% , modifying IPCP and evaluating the traces using Champsim.

Other Projects

Documentaion of Data structures | Course Project *(Aug '22 - Nov '22)*
Guide: *Prof.Kavi Arya* | *Department of Computer science and Engineering — CS 251* *IIT Bombay*

- Documented the Data Structures(Doubly Linked List, Heap, BST, Trie) using **Sphinx** and **Doxygen**

Personal Website | Course Project *(Aug'22 - Nov'22)*
Guide: *Prof.Kavi Arya* | *Software systems Lab* *IIT Bombay*

- Designed a creative Website about myself using **HTML, CSS and JavaScript** with necessary features.
- Added extra features using **Bootstrap** to automatically adjust the size of the webpage to fit the screen

Image Processing and Data Analysis | Course Project *(Aug'22 - Nov'22)*
Guide: *Prof. Suyash P. Awate* | *Data Analysis and Interpretation* *IIT Bombay*

- Implementing the **Algorithm for Euclidian Planar uniform sampling** and PCA for hyperplane Fitting.
- Obtaining the Original Image through **Reverse Image processing** from 84-coordinate system

Number Riddle | Course Project *(Spring '23)*
Guide: *Prof. Ashutosh Gupta* | *Logic for Computer science— CS 228* *IIT Bombay*

- Designed a Python-based Number Puzzle using the **Z3 library** and SAT solvers to find optimal solutions.
- Utilized Z3 constraints to enforce the puzzle rules into an **SAT** problem in finding the solution.

Random walkers | Course Project *(Aug'22 - Nov'22)*
Guide: *Prof. Suyash P. Awate* | *Data Analysis and Interpretation* *IIT Bombay*

- Obtained the **Gaussian Distribution** for N Random walkers and plotted it on a graph using **MATLAB**
- Verified the **Law of Large Numbers** by analyzing the true and empirically computed mean, variance.

Tic-Tac-Toe | Course Project *(Aug'22 - Nov'22)*
Guide: *Prof. kavi Arya* | *Software systems and labs* *IIT Bombay*

- Used the concepts of **Socket programming** in Java to build the famous Tic-Tac-Toe game.
- **Inter-process Communication** and **Socket Variables** are used to ease the messaging between players

Technical Skills

Programming	C++, C, Python ,Java, Bash, Awk, Sed, prolog, Haskel
Web Development	Flutter, HTML, CSS, BootStrap, JavaScript, Doxygen, Sphinx
Software	MATLAB, LaTeX, Docker, FLTK, GitHub

Position Of Responsibility

Events and Alumni Coordinator | IITB Community *(April '23 - Present)*

- Created an alumni database, to support **mentorship** and **career development** opportunities.
- Organized diverse campus events and managed alumni reunions, fostering a vibrant campus culture.

Marketing Coordinator | Aavhan IITB Community *(Spring '23)*

- Strengthened sponsor relations via LinkedIn engagement, promoting long-term partnerships.
- Organized diverse campus events and managed alumni reunions, fostering a vibrant campus culture.

Courses Undertaken

Computer Science	Implementation of Programming Languages + Lab*, Database and Information Systems + Lab*, Automata Theory, Artificial Intelligence and Machine Learning + Lab, Data Structures and Algorithms + Lab, Discrete Structures, Data Analysis and Interpretation, Software Systems Lab, Design and Analysis of Algorithms, Digital Logic Design + Lab, Computer Networks + Lab, Logic for Computer Science, Abstractions and Paradigms in Programming, Computer Programming and Utilization, Medical Image Processing
Mathematics	Calculus, Linear Algebra, Differential Equations, Introduction to Numerical Analysis*
Others	Remote Sensing and Image Processing, Introduction to Electrical and Electronics Circuits, Quantum Physics and Application, Basics of Electricity and Magnetism, Engineering Graphics and Drawing, Physical Chemistry, Organic and Inorganic Chemistry, Biology

**to be completed by May 2024*

Extracurricular Achievements

- Completed a **2 month Training course in Machine Learning** in Upskillz in collab with IIT KGP *(2022)*
- Selected to the **Regional Maths Olympiad (RMO)** for 2 consecutive years *(2018 & 2019)*
- Actively participated in the **Powaii lake cleaning** program conducted by **Abhyuday IIT Bombay** *(2022)*
- Successfully completed a year-long of **Volleyball** coaching under **National Sports Organization**
- Awarded a certificate for excellent performance in **Knowledge Assessment Test (KAT)** *(2019)*
- Awarded title Student of the Year for Academic Year 2017-18 by Oxford Public School, A.P *(2018)*
- Participated in **State level Taekwondo Tournaments for 3 times** ,Conducted by A.P Sports Association