



Sushant Kumar

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DOB: 3 May, 2004

Address: Bakul Nivas, IIIT-H campus, Gachibowli, Hyderabad - 500032



Education

International Institute of Information Technology, Hyderabad

B.Tech + MS by Research in Computer Science

2024 - Present

CGPA: 8.88

(Till 2-1st semester)

Indraprastha Institute of Information Technology, Delhi

B.Tech (CSE)

2022 - 2024

CGPA: 8.75

(Till 4th semester)

St. Columba's School, New Delhi

CBSE, Standard 12, PCM

2020 - 2022

Percentage : 90%

St. Columba's School, New Delhi

CBSE, Standard 10

2009 - 2020

Percentage : 97%

Skills

Proficient in: Analytic Problem Solving, Statistical Machine Learning

Programming Languages: Python, C/C++, Java, JavaScript

Tools and Technologies: Git, \LaTeX , HTML5, Bootstrap, CSS, NodeJS, ReactJS, LangChain, JavaFX, MongoDB, MySQL, graph DB, Matplotlib, Pandas, NumPy, PyTorch

Technical Electives: Data and Applications (grade A), Statistical Methods in AI, Data Structures and Algorithms, Algorithm Design and Analysis, Advanced Programming (OOP), Digital Circuits, Computer Organization, Operating Systems and Networks, Discrete Mathematics, Statistical Machine Learning, Design and Analysis of Software Systems, Theory of Computation, Graph Theory, Number Theory, Multivariate Calculus, Linear Algebra, Probability and Statistics

Projects

Bookstore Application

Designed an ER diagram and reduced it to a relational schema for a bookstore database created in MySQL. Used PyMySQL connections to write CRUD operations in Python like purchase of book, inventory analysis etc., Implemented extensive error checking including rollback for conflicting transactions. GUI was created using PyQt5. Repository [here](#).

Team Size-4

(Oct, 24 - Dec, 24)

Multimodal Emotion Recognition

Independently learnt models for datasets from 2 different modalities - text and images. Used NLP tools like TF-IDF to process data for text, studied the effects of balancing dataset by oversampling by duplication and by SMOTE. Used PCA to reduce dimensions and did comprehensive data processing. Learnt Random Forests for text data. Learnt Random Forests and gradient boost for Image data. Used 2 architectures for combining modalities. Did comparative analysis for early fusion vs late fusion. Report and code [here](#).

Individual

(Mar, 24 - April, 24)

Network File System for Linux

Implemented the NFS from scratch. The basic structure of the storage and naming servers and the client and their inter-communication was designed and implemented. Initialization of nms, registration of ss, handling multiple ss and clients by threading, CREATE, DELETE, COPY, STREAM operations for storage servers (and their subroutines), hashmap for efficient search in nms and error codes were implemented. Implemented the READ, WRITE, LIST and STAT operations for the storage servers. Added the LRU caching mechanism in conjunction to the hashmap for efficient search in naming server. Implemented logging mechanism for bookkeeping. Debugging and testing. Repository [here](#).

Team Size-2

(Sep, 24 - Nov, 24)

Improvements for the xv6 OS Kernel

Implemented sigalarm and getSyscount system calls. Added lottery based scheduling and multi-level feedback queues. Added Copy-on-write fork mechanism. Repositories [1](#) and [2](#).

Individual

(Sep, 24 - Nov, 24)

Stick Hero Game

Implemented a complete single player game with real time controls extensively using OOP concepts and GUI designed using JavaFX library Repository [here](#).

Team Size-2

(Oct, 23 - Dec, 23)

C Shell for Linux

Implemented a Shell for linux in C from scratch with comprehensive parsing, support for system calls as well as implemented new shell commands like hop, seek, log, reveal, neonate etc. Provided support for piping and redirection, foreground and background process as well as signal handling. Stress tested robustness for all functionalities. Repository [here](#).

Individual

(Aug, 24 - Sep, 24)

Positions of Responsibility

Vice President, Indian Game Theory Society IITD chapter

(Aug,23 – May,24)

Volunteer at IITD cultural fest Odyssey '24

(Jan,24)

Awards and Achievements

- Qualified **National Talent Search Exam by NCERT**(Govt. of India) Stage 1 and Stage 2 with a **Delhi State Rank 8**
- St. Columba's School Class X CBSE board **2nd topper** and **Science topper** (99)
- Awarded **Gold medal** seal at XXXV **Manav Sthali** All India Inter School Math Talent Test held on 19th Jan 2019
- Secured **Delhi state rank 2** and **Global rank 21** at SIVERZONE International Olympiad of Science 2018
- Secured **Delhi state rank 6** and **Global rank 381** at SIVERZONE International Olympiad of Mathematics 2018
- Awarded **Certificate of Distinguished Performance** for the **ASSET** test held in 2018-19
- **Global rank 66** at South East Asian Mathematics Olympiad 2017
- Secured **All India Rank 36** at **FIITJEE Talent Reward Exam** held on 25th December, 2016 at over 60 cities across the country
- **All Indian Rank 30** at FIITJEE Big Bang Exam 2019
- **Overall 1st position** at St. Columba's School in 2017, 2016, 2015

Interests and Hobbies

- Solving challenging mathematical problems especially those that are algorithmic in nature
- Listening to Machine/Deep Learning Talks and expert talks on AGI
- Filmmaking using AI
- Quizzing (secured 3rd position at AHIMPEX-2019 a philately exhibition and was awarded a bronze medal by the Law Minister of India at the PHD Chamber of Commerce and Industry), Writing (Hindi article "Bhagya ya Purusharth" published in The Columban Magazine 2021), Traveling.

Declaration: The above information is correct to the best of my knowledge.

Sushant Kumar

Date: January 16, 2025