SACHIN

ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	B.Tech in Computer Science & Engineering	Indian Institute of Technology, Delhi	9.35
2019	CBSE	Star Public School	97.40
2017	CBSE	Lords International School	10

SCHOLASTIC ACHIEVEMENTS

- **Department Change: One of 13** students in IITD to secure discipline change to CSE on a **merit** basis [2020]
- **Outstanding Grade: One of 29** students in IITD to score **10 CGPA** in every course in first semester [2019]
- **IITD Semester Merit Award:** Conferred for ranking amongst **top 7%** students in first sem IITD [2019]
- **Joint Entrance Examination (JEE) Advanced:** Secured **All India Rank 168**(OB) among 0.22 million candidates [2019]
- **Joint Entrance Examination (JEE) Mains:** Secured **All India Rank 190**(OB) among 1.15 million candidates [2019]
- **Olympiads:** School **Gold Medalist** and 2nd level selection in SOF Science and Mathematics Olympiad [2017]

INTERNSHIPS

- **Mastercard Gurugram, AI Intern**: *Entity driven Representation learning* [Jun, 2022 - July, 2022]
  - Designed Entity based **feature representation** of **transactional** data using **LSTM**, usable on any downstream problem
  - Utlized **four party model** of mastercard to design enitities and get transaction level and card level **embeddings**
  - Used **hierarchical softmax** for extreme class classification, **gross domestic value** and **TPP** problem for testing

PROJECTS

- **Driver Profiling** | ***Prof. Rijurekha Sen***: [Dec, 2021 - Apr, 2022]
  - Detected **rash driving** on Delhi buses by profiling driver behavior using **supervised learning** on **unlabelled** data
  - **Simulated** the GPS data on **Unity** in real-time to visualize data and performed **anomaly detection** of faulty sensors
  - Developed heuristics to **label** the **ground truth** and used labeled data to perform **classification** using **random forest**
- **Shell based Operating System** | ***Prof. Sorav Bansal***: [Feb, 2022 - Apr, 2022]
  - Developed a shell-based **kernel** from scratch that takes input from I/O devices and perform basic math operations
  - Implemented **Coroutines**, **Fibres**, **Non-Preemptive** and **Preemptive** scheduling and **multi-core** functionality
- **Template Search in image** | ***Prof. Subodh Kumar***: [Mar, 2022 - Apr, 2022]
  - Implemented an algorithm to determine the position of potentially rotated query image on input image **concurrently**
  - Used **CUDA** for parallel computation, **bilinear interpolation** to compute rotated coordinates, and **RMSD** for error
- **Restaurant dashboard** | ***Prof. Maya Ramanath***: [Feb, 2022 - Mar, 2022]
  - A **web-based** dashboard for restaurants that allows users to **log in** with different **levels** and query or edit data
  - Developed **front end** using HTML and CSS, **back-end** using flask and PSQL to support highly customizable **queries**
- **SML Compiler** | ***Prof. S.Arun Kumar***: [Mar, 2021 - May, 2021]
  - Developed a compiler and **evaluator** for toy language of boolean algebra and integer arithmetic, using LR(0) parser
  - Language supports **type checking**, variable declaration, **lambda calculus**, recursion, and **functional programming**
- **Traffic Density Estimation** | ***Prof. Rijurekha Sen***: [Feb, 2021 - Mar, 2021]
  - Computed queue and dynamic traffic density on a given road by finding difference in frames using **OpenCV** in C++
  - Used optimizations like **background subtraction**, changing **homography**, parallel computation using **pthreads**
  - **Reduced** computation **time** on a benchmark video by a maximum of **58.8%** (0.5% RMS error) and by **25%**(no error)
- **MIPS Simulator** | ***Prof. Preeti Ranjan Panda***: [Feb, 2021 - May, 2021]
  - Simulated single cycle **multi-core processor** that interprets and then executes multiple MIPS programs parallelly
  - Implemented non-blocking **DRAM** timing model, 1st level **cache** and instruction **reordering** reducing CPI by **50%**

TECHNICAL SKILLS

- **Programming Languages:** C/C++, Python, Java, SQL, SML/NJ
  - Familiar: MIPS(Assembly), VHDL, HTML, CSS, JavaScript, C#, Prolog, Bash
- **Libraries:** TensorFlow, Sklearn, CUDA, MPI, OpenMP, OpenCV, SDL, Pandas, Seaborn, MatplotLib, NumPy, Yacc, Lex
- **Software & Tools:** Unity, Git, LaTeX, Linux, Vivado, QtSpim, Blender, AutoDesk Inventor

POSITIONS OF RESPONSIBILITY

- **Executive, DevClub** : [May, 2022 - Present]
  - Organised 3 days long **GameJam** event in **Tryst** 2022 as a part of Game Development Club IITD
  - Helped in the smooth working of **game-dev** part of the club and developed multiple **PC games** using **Unity**
- **Student Mentor, BSW** : [July, 2021 - May, 2022]
  - Counseled 5 freshers to acclimatize them with institute activities, ensuring smooth transition into IIT Delhi

Disclaimer: All the information on this page is entered by student.

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IIT COURSE

Degree	Institute	CGPA
B.Tech in Computer Science & Engineering	Indian Institute of Technology, Delhi	9.35

COURSES DONE

Linear Algebra & Diffe. Equa., Calculus, Intro. To Computer Science, Programming Languages, Computer Architecture, Design Practices, Probability & Stochastic Pro., Data Structures And Algorithms, Digital Logic & System Design, Discrete Mathematical Structur, Introduction To Comp.sc. & Eng, Computer Networks, Principles Of Artificial Int., Analysis & Design Of Algorithms, Linear Algebra & Applications, Intro To Automata & Th. Of Co., Intro. To Parallel & Dis. Pro., Operating Systems, Mini Project

QUALIFYING EXAM

• **Joint Entrance Examination (JEE) Advanced Rank:** 168 (OB)

EXTRA CURRICULAR ACTIVITIES

• Third, Basketball (Freshers Inter-Hostel Sports, Vindhyachal Hostel), Freshers Inter-Hostel Sports, Vindhyachal Hostel (August, 2019 - March, 2020)

POSITIONS OF RESPONSIBILITY

• Executives, DevClub, CAIC (May, 2022 - June, 2023)
• Mentor, BSW (July, 2021 - May, 2022)
• Maintenance Committee Member, Vindhyachal, BHM (July, 2021 - May, 2022)