

Sachin

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Education

Year	Degree/Board	Institute	GPA/Marks(%)
2019-2023	B.Tech in Computer Science & Engineering	Indian Institute of Technology, Delhi	9.407
2019	Class XII, CBSE	Star Public School	97.40%
2017	Class X, CBSE	Lords International School	10

Work Experience

- Mastercard Gurugram, AI Intern:** *Entity driven Representation learning* Jun, 2022 - July, 2022
- Designed a **scalable** Entity based **feature representation** of **transactional** data using **LSTM**
 - Utilized **four party model** of mastercard to design entities and get transaction level and card level **embeddings**
 - Used **hierarchical softmax** for extreme class classification, **gross domestic value** and **TPP** problem for testing
 - Proposed representation is **generalizable** & can be used on any downstream problem. **Awarded PPO for my work**

Scholastic Achievements

- Department Change:** One of **13** students in IITD to secure discipline change to CSE on **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
- JEE Advanced:** Secured **All India Rank 168**(OB) among 0.22 million candidates 2019
- JEE Mains:** Secured **All India Rank 190**(OB) among 1.15 million candidates 2019
- Olympiads:** School **Gold Medalist** & 2nd level selection in SOF Science and Mathematics Olympiad 2017

Projects

- Traffic intersection controller** | *Prof. Rijurekha Sen:* Aug, 2022 - Dec, 2022
- Evaluated transferability & adaptability of FrugalLight, a Reinforcement Learning based traffic signal controller
 - Analysed different similarity metrics to explain learnability & compare models trained without traffic simulator
- Cloud Service for Assignments** | *Prof. Abhilash Jindal:* Sep, 2022 - Nov, 2022
- Created an end-to-end cloud service for teaching & evaluation where student SSH into their VM & solve assignment
 - Added functionality to pause and resume VM. Hypervisor listens on RPC port to save or restore snapshot of live VM
 - Proposed efficient way of saving multiple VM snapshots by using de-duplication. Deployed this feature as rust crate
- Cross Lingual NLI** | *Prof. Mausam:* Oct, 2022 - Nov, 2022
- Few-Shot Cross-Lingual Transfer Learning for Natural Language Inference using mBERT language model and adapters
 - Transferred learning of high resource language (English) to 4 low resource languages. Achieved 72% average accuracy
- 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
 - Performed anomaly detection of faulty sensors & developed heuristics to label ground truth to perform classification
- 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
- 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

Technical Skills

Languages: C/C++, Python, Java, SQL (Postgres), SML/NJ, Rust

Familiar: MIPS(Assembly), VHDL, HTML, CSS, JavaScript, C#, Prolog, Bash

Libraries: CUDA, MPI, OpenMP, OpenCV, Pytorch, TensorFlow, Sklearn, Pandas, Matplotlib, NumPy, SDL, Yacc, Lex

Software & Tools: Unity, Git, LaTeX, Linux, Vivado, QtSpim, Blender, AutoDesk Inventor

Relevant Courses

- **Computer Science:** Virtualization & Cloud Comput, Natural Language Processing, Operating Systems, Parallel & Distributed Programming, Database Management System, Theory Of Computation, Computer Networks, Principles Of Artificial Intelligence, Analysis & Design Of Algorithms, Data Structures And Algorithms, Computer Architecture, Programming Languages, Design Practices, Discrete Mathematical Structur, Mini Project, Btech Project, Digital Logic & System Design
- **Mathematics & Other:** Probability and Stochastic Processes, Signals and Systems, Linear Algebra & Application, Algebra, Introduction to Calculus, Fundamentals Of Language Sciences, Introduction to Electrical Engineering

Position of Responsibility

Executive, DevClub:

May, 2022 - Nov, 2022

- 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