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	9.387
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**

Schoslastic Achievements

- **Woldquant Global Alphathon**: Our team secured **26th rank** out of 13k teams worldwide in stage-I 2022
- **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

Projects

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** to solve assignment
- Added functionality to **pause** & **resume** VM. Hypervisor listens on **RPC port** to save or restore **snapshot** of VM
- Proposed **efficient** way of saving multiple VM snapshots using **de-duplication**. **Deployed** this feature as rust **crate**

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

Cross Lingual NLI | *Prof. Mausam*: Oct, 2022 - Nov, 2022
- **Few-Shot** Cross-Lingual **Transfer Learning** for Natural Language Inference using **mBERT** 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
- **Simulated** GPS data on **Unity** to perform **anomaly detection** of faulty sensors & used **random forest** for training

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