# SARTHAK JAIN

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## Education

| Degree/Certificate | Institute/Board | Duration | CGPA/Percentage |
|---|---|---|---|
| BTech in Computer Science Engineering | Guru Gobind Singh Indraprastha University, New Delhi, India | 2021-2025 | 8.5/10 |
| Senior Secondary (Class XII) | DL DAV Model School, Shalimar Bagh, New Delhi, India | 2019-2021 | 91.1/100 |
| Secondary (Class X) | Delhi Public School, Sonepat, Haryana, India | 2007-2019 | 94/100 |

## Experience

- **Indraprastha Institute of Information Technology, Delhi**                    New Delhi, India
  **Research Assistant**                                                        Nov 2023 (Present)
  - Currently engrossed in emotion classification using diverse speech datasets across multiple languages. Implementing a Fine Tuning approach and harnessing various neural networks for speech recognition. This strategic approach is designed to alleviate Catastrophic Forgetting, ensuring the model retains significant information learned from past trainings.

- **Indian Institute of Technology, Ropar**                                     Ropar, Punjab, India
  **Research Assistant**                                                        Sep 2023 - Nov 2023
  - Engaged in 'BLE-based Power-Efficient Design for Cow Health Monitoring system' using accelerometer sensors. Utilized MATLAB and Python for detailed graphical analysis, employing statistics to calculate RMS, mean, variance, etc. Investigated data packet transmission over a network, incorporating gateway and GSM module functionalities. Distinguished machine learning activity predictions from mathematical data analysis.

- **Indian Institute of Technology, Ropar(iHub-AWaDH)**                         Ropar, Punjab, India
  **Software Development Intern**                                               June 2023 (Present)
  - Contributing to accurate activity predictions through ML models, in the front-end development of android app, webapp, website using Flutter and React.JS. Actively building and enhancing a CI/CD pipeline on GitHub to deploy changes efficiently. Integrating multiple features seamlessly as the architecture evolves, utilizing APIs to retrieve data from AWS DynamoDB.

- **Hello World Technologies**                                                  Bangalore (Remote)
  **Software Development Intern**                                               June 2023 - Aug 2023
  - Contributed to full-stack web development, utilizing technologies such as React.js for the frontend, Node.js for the backend, and MySQL for database management. Integrated APIs for enhanced functionality and implemented a robust CI/CD pipeline for seamless development, testing, and deployment. Collaborated on project management and issue tracking using JIRA, ensuring efficient coordination and workflow transparency. Version control was facilitated through GitHub.

- **Saint Louis University, USA**                                               USA (Remote))
  **Data Visualization Intern**                                                 May 2023 - June 2023

- **Saint Louis University, USA**                                               USA (Remote))
  **Project Management Intern**                                                 May 2023 - June 2023

- **NbliK**                                                                     New Delhi (Remote))
  **Community Manager Intern**                                                  Sept 2022 - Dec 2022

- **Hamari Pahachan NGO (HPNGO)**                                               New Delhi (Remote))
  **Digital Marketing Intern**                                                  Nov 2022 - Dec 2022

## Projects

- **Cow Health Monitoring System** Git                                          **June 2023 (Present)**
  - Guided by Dr.Suman Kumar (Prof. IIT Ropar), developed a Real-Time Cow Activity Monitoring System for analysing cow's health.
  - Employed technologies: ML, AWS (cloud), Flutter, Dart, Python, Lambda. Hardware: accelerometer, NRF5340DK BLE PCB (gateway), GSM, wifi and Bluetooth modules.

- **Illegal Car Tracking System using ML** Git                                  **May 2023 - July 2023**
  - Implemented real-time Deep Learning and OCR system to capture license plates, mitigating congestion from external car influx in dense urban areas like New York, New Delhi, Tokyo, Shanghai.
  - After certain days, non-native plates trigger owner alerts, urging timely state exit, using Twilio client service.

- **Internet Security Analysis using ML** Git                                   **May 2023**
  - Internet security is vital as attackers often target vulnerabilities. This project explores ML-based Internet Security Analysis, leveraging patterns in network traffic data.

- **Complaint Reporting System** Git                                            **Nov 2022 - Feb 2023**

– A real-time Python and MySQL-based system, reports crimes (frauds, robbery etc.) and social issues (dirty parks, garbage etc.).

- **Medical Store Stocks Manager** Git                                           **June 2022 - August 2022**
  - Efficient medical store inventory management system: Real-time, Python-based with user-friendly TKinter GUI and MySQL database.
- **Casino - A Game of chance** Git                                       **Oct 2021**
  - A virtual game in C, C++ and command line tools: Player starts with money, rolls dice. If favorable, large money increments to the acct. if unfavorable, smaller deduction takes place.

## Technical Skills

- **Programming Languages:** C/C++, Python, Java, Dart, Matlab
- **Web Technologies:** HTML, CSS, Bootstrap, NodeJS, React, Flutter, Wordpress
- **Databases and Cloud:** MySQL, AWS
- **Machine Learning and Deep Learning:** OpenCV, TensorFlow, OCR, NLP(Natural Language Processing), PyTorch
- **Version Control and Collaboration:** Github, Git
- **Hardware and microcontrollers:** Arduino, Raspberry Pi

## Key Courses Taken

- **Computer Science:** Data structures and algorithms, C/C++ and Java programming, compiler design, operating system, SE
- **Mathematics:** Linear Algebra, Advanced Calculus, Discrete Maths, Probability & statistics
- **Electronics:** Networking, Digital logic and circuit designing, Signals and systems, Electrical science

## Recommendations

- **Dr.Suman Kumar :** Assistant Professor of EE Department at Indian Institute of Technology, Ropar, India. Link
- **Mr.Ismail Khan:** Chief Operating Officer (COO) at Hello World Technologies, Banglore, India. Link
- **Dr.Mohammed Aslam:** Assistant professor at Mathematics department of Guru Gobind Singh Indraprastha University. Link

## Activities, Awards and Participations

- **CodeChef competitive programming:** Max 3 stars (Highest rating 1543)
- **IEEE WebDev Hackathon:** Among top 8 teams to reach the final round
- **IRC Robotics Competition:** 2nd Rank Holder at district level
- **Google AI— Explore ML:** Attended the intermediate track
- **World Wide Fund for Nature:** Attended webinar on 'Snow leopard conservation'
- **Inter DPS Lawn Tennis Competition:** 1st Rank Holder

## Upcoming Publication (under review)

- **BLE-based Power Efficient Design using Accelerometer for Cow Health Monitoring System**
  - By Radhika Raina, Lalit Kumar Baghel, **Sarthak Jain**, and Suman Kumar
  - Cow Health Monitoring project aims for feature extraction and selective activity transmission (resting, grazing, etc.) to the AWS database to minimize data size.
  - This involves configuring the NRF5340DK to apply a specific threshold for achieving the goal.