

Sharanya Saha

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EDUCATION

Year	Degree/Certificate	Institute	CPI/%
2021-Present	M.Tech/Computer Science & Engg.	Indian Institute of Technology, Kanpur	9.71/10
2017-2021	B.Tech/Computer Science & Engg.	Government College of Engg. & Leather Technology	9.20/10
2017	AISSCE(XII)	Kendriya Vidyalaya Cossipore	94.60%
2015	AISCE(X)	Kendriya Vidyalaya Cossipore	10/10

RESEARCH EXPERIENCE

- **Real-time low-cost source apportionment using ML**(M.Tech Thesis) (Mar '22-Present)
Guide: Prof. Purushottam Kar
 - Introduced a novel paradigm for Real-Time Source Apportionment based on data acquired from low-cost air quality sensors instead of employing expensive instruments
 - Predicted the concentration breakdown of organic aerosols in the atmosphere with the help of various ML algorithms
 - Worked extensively on the visualization of time series values and identified temporal trends in the data
- **Robust Positive matrix Factorization(PMF) for source apportionment**(M.Tech Thesis) (Mar '22-Present)
Guide: Prof. Purushottam Kar
 - Implementing a unique robust PMF-based algorithm to determine the concentration of atmospheric organic aerosols

PROJECTS

- **Snort Based Intrusion Detection ft. ML Models** (CS658A) | Guide : Prof. Sandeep Shukla (Jan '22-April '22)
 - Trained different machine learning models on a publicly available dataset(NSL-KDD) for network intrusion detection
 - Performed real-time DoS attack and used Snort as a packet sniffer to capture the attack logs
 - Preprocessed the captured logs and used them to detect an intrusion using the trained ML models
- **NIRF Data Extraction and Analysis** (CS685A) | Guide : Prof. Arnab Bhattacharya (Sept'21-Nov'21)
 - Performed preliminary processing on the available data to retrieve tables from approximately 300 PDF files
 - Developed a structured dataset from the PDF files to facilitate easy analysis and predictions
 - Used the generated dataset to visualise broad trends and insights after eliminating irregularities across different files
- **Smart Visitor Recognition System** (CS698T) | Guide : Prof. Priyanka Bagade (Sept'21-Nov'21)
 - Developed a light weight machine learning and IoT based visitor recognition system
 - Accomplished face recognition by extracting the face encodings and facilitated rule-based entry
 - Deployed a notification delivery system that operates in real time to provide increased convenience and safety
- **Computational Brain Modelling** (CS786) | Guide : Prof. Nisheeth Srivastava (Feb '22-Apr '22)
 - Implemented Hopfield network from scratch and modelled its behaviour under a wide range of conditions
 - Performed classification on MNIST dataset using Hopfield networks and compared the results to other standard algorithms
 - Implemented Gabor filters from scratch to recognize basic geometric forms like squares and triangles
- **Covid and Vaccination Data Analysis** (CS685A) | Guide : Prof. Arnab Bhattacharya (Sept'21-Oct' 21)
 - Handled data from multiple sources, such as census and government APIs, along with the associated inconsistencies
 - Analysed extensively on country, state and district level Covid-19 infection, death and vaccination data
 - Identified wave-1 and wave-2 peaks for country, state and district and predicted the completion date for dose-I vaccination
- **Smart Irrigation System** (CS698T) | Guide : Prof. Priyanka Bagade (Sept'21-Oct' 21)
 - Simulated IoT-based irrigation system to gather humidity and moisture data from sensors at various locations
 - Trained a neural network to control water flow for each edge device based on its relative humidity and moisture content

INTERNSHIPS

- **OYO-Oravel Stays Pvt. Ltd** (Jan '19-Mar' 19)
Designation: Project Intern, Sales Team

SCHOLASTIC ACHIEVEMENTS AND POSITIONS OF RESPONSIBILITY

- Awardee, **Academic Excellence Awards**, Indian Institute of Technology, Kanpur (Jul '22)
- Secured **All India Rank 195** in **GATE CS 2021** amongst 101922 candidates
- Secured II position in Inter-college debate competition, organized by Enginerds2K19
- **Teaching Assistant** : Introduction to Machine Learning(CS771A), Computer Organization(CS220) and Fundamentals of Computing(ESC101) (Jan'22-Present)

RELEVANT COURSES

(*) - Excellent Performance

- **Postgraduate** : Introduction to Machine Learning, Data Mining, Computational Cognitive Science, Introduction to IoT*
- **Undergraduate** : Data Structures and Algorithms, Operating Systems, Databases, Object Oriented Programming

TECHNICAL SKILLS

- **Languages** : C, C++, Python
- **Libraries/Utilities**: Scikit-learn, Numpy, Pandas, Seaborn, Matplotlib, Git, \LaTeX