Sarthak Naithani | CS22M078

Indian Institute of Technology Madras

Placement Registration Number - R/33/CS/24/078

Education

Program	Institution	%/CGPA	Year
M.Tech. (Computer Science and Engg.)	Indian Institute of Technology Madras	7.91	2024
B.Tech. (Computer Science and Engg.)	DIT University	8.28	2021
XIIth std. - ISC	Cambrian Hall	87.00	2016
Xth std. - ICSE	Cambrian Hall	79.67	2014

Scholastic Achievements

○ Secured an **All-India-Rank 78** in GATE 2022 among other 77,000+ candidates

Work Experience

1. Software Development Intern, Amazon · **May 2023 - Aug 2023**

Team: Core-Transportation, Hyderabad, Telangana · *Microservices Architecture, Java*

○ Led the successful migration of local configurations to AWS AppConfig, enabling dynamic deployment of configurations for faster updates and reduced redeployment overhead.

○ Developed a reusable and scalable Java service design to retrieve configurations from AWS AppConfig, ensuring its adaptability for fetching other configurations as well.

○ Led the seamless deployment of code changes in the production environment.

○ Developed a robust migration strategy using Weblab to minimize disruptions during the transition.

○ Thorough testing and validation were performed to ensure a smooth migration process, with the aim of minimizing potential risks and downtime. This involved the utilization of Mockito and JUnit for testing purposes.

2. Intern, L&T Technology Services · **May 2021 - Jul 2021**

Mysore, Karnataka · *Spring Boot, Java*

○ Mastered Java Spring Boot MVC and Restful API during comprehensive training.

○ Seamlessly integrated the frontend with a powerful Spring Boot backend to enable smooth data processing and management.

○ Gained extensive exposure to essential Spring features, including Inversion of Control (IoC) and Dependency Injection.

○ Successfully applied Spring's IoC and Dependency Injection principles to achieve modular and maintainable code.

○ Demonstrated proficiency in creating Restful APIs to facilitate seamless communication between frontend and backend components.

3. Intern, Oil and Natural Gas Corporation · **Mar 2019 - Jul 2019**

Dehradun, Uttarakhand · *SQL*

○ Responsible for building the schema for registered students on the ONGC online internship portal.

○ Implemented CRUD (Create, Read, Update, Delete) operations for student data.

○ Utilized MySQL as the database management system for storing and managing student records.

Projects

1. Making Tokenization Efficient for Multilingual Setting · **Aug- 2023**

M.Tech Project · *Prof. Mitesh Khapra*

○ Investigating various methods to reduce expenses and enhance efficiency when tokenizing Indic languages.

○ Working to enhance NLP tasks like translation and sentiment analysis by breaking down complex words into subwords, contributing to improved language understanding and more efficient analysis.

2. Feedforward Neural Network: Backpropagation and Optimization Functions.   **Jan-May 2023**
CS6910: Fundamentals of Deep Learning   *Prof. Mitesh Khapra*

○ Implemented a flexible feedforward neural network from scratch that takes images from the Fashion-MNIST dataset as input and outputs a probability distribution over the 10 classes.

○ The neural network supports different configurations, allowing easy changes to the number of hidden layers and the number of neurons in each hidden layer.

○ The neural network is integrated with backpropagation algorithm, which supports optimization functions like SGD, Momentum-based Gradient Descent, Nesterov Accelerated Gradient Descent, RMSprop, Adam and NAdam

3. Recurrent Neural Network to build a transliteration system.   **Jan-May 2023**
CS6910: Fundamentals of Deep Learning   *Prof. Mitesh Khapra*

○ Constructed RNN seq2seq model with input character embedding layer, encoder RNN for Latin character sequence, and decoder RNN producing Devanagari characters using last encoder state.

○ The code is flexible such that the dimension of the input character embeddings, the hidden states of the encoders and decoders, the cell (RNN, LSTM, GRU), and the number of layers in the encoder and decoder can be changed.

○ Added an attention network to sequence to sequence model and trained the model again.

4. Spam/Ham Email Classifier.   **Oct-Nov 2022**
CS5691: Pattern Recognition and Machine Learning   *Prof. Arun Rajkumar*

○ Developed a classifier for classifying Emails using Naive bayes

○ Employed Laplace smoothing to address zero probabilities in the Naive Bayes Email Classifier

5. Comprehensive Analysis of Data Using Machine Learning.   **Oct-Nov 2022**
CS5691: Pattern Recognition and Machine Learning   *Prof. Arun Rajkumar*

○ Applied PCA for feature reduction, enhancing classification and regression models.

○ Utilized machine learning for accurate classification and regression, demonstrating data analysis and prediction skills.

6. Sudoku Solver.   **Jan-Feb 2021**
Personal Project

○ Employed backtracking to efficiently solve Sudoku, designed user-friendly puzzle input grid in HTML/CSS with solve and reset buttons.

Positions of Responsibility

Teaching Assistant, Indian Institute of Technology, Madras   **Oct-Nov 2022**
CS3300: Compiler Design   *Prof. KC Sivaramakrishnan*

○ The compiler project comprised six essential stages: lexical analysis, type checking, two stages of intermediate representation (IR) generation, register allocation, and, ultimately, MIPS assembly code generation.

Course Work

○ **Theory**: Advanced Data Structures and Algorithms.

○ **Programming**: Advanced Programming Laboratory.

○ **Intelligent Systems**: Pattern Recognition and Machine Learning, Deep Learning.

○ **Mathematics**: Linear Algebra and Random Processes.

Undergraduate Course Work

○ **Database**: Relational Database Management Systems.

○ **Programming**: Computer Programming, Data Structures, OOPS through Java

Technical Skills

○ **Programming Languages**: C, C++, Java, Python.

○ **Frameworks and Tools**: Spring, PyTorch, Git