STITIPRAJNA SAHOO

ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	B.Tech in Computer Science & Engineering	Indian Institute of Technology Delhi	8.56
2020	Central Board of Secondary Education, India	DAV Public School, CSPur, Odisha	98.6%
2018	Central Board of Secondary Education, India	DAV Public School, CSPur, Odisha	99.2%

SCHOLASTIC ACHIEVEMENTS

- **A** grade in **ML***(top 5 in course)*, **A** in **COL707** (Course on *Fair ML and Security*), **A-** in **Operating Systems** (Linux based)
- **Merit list for top 7%**- Placed in merit list of **top 7% academic performers** in batch (on basis of GPA) in IIT Delhi, 2021
- Secured an **AIR 365** in **JEE Advanced, 2020** *(amongst 1.5 lakh candidates)*, **AIR 188** in **JEE Main, 2020** *(amongst 10 lakh students)*
- **KVPY Fellowship Award**: Selected for *Kishore Vaigyanik Prosthahan Yojna*, secured **AIR 260**(GEN) in KVPY(SA), 2018
- **Olympiads**: Qualified **National Standard Examination** in Physics, Chemistry by *IAPT* and **Regional Mathematical Olympiad**
- Accomplished a prestigious **4th position** nationwide, achieving **99.2 percentage** in the *CBSE 10th board examinations, 2018*
- **NTSE Scholar**: One of 1000 candidates to be awarded **national level scholarship** funded by *NCERT, Govt. of India, 2018*

TECHNICAL SKILLS

- **Languages**: **C++, Python, Java, C**, Prolog, HTML & CSS, VHDL, ARM (*Assembly Language*), Standard ML, Latex
- **Libraries**: **SDL**(C++), **Librosa**, **Numpy**(Array Handling, Python), **Pandas**, **Scikit-learn** (Machine Learning), **OpenCV, Matplotlib**
- **Frameworks and Softwares**: **Spring**, **JUnit**, **MyBatis**, proficient in **Linux**, **GitHub**, ML-Lex, ML-Yacc, Makefile, Readme

INTERNSHIPS

- <u>**Software Development Internship at** *Arcesium India Private Limited, Gurgaon*</u>   (May 2023 - July 2023)
  - Implemented **distributed caching** for a **multi-tenant** system for **enhanced responsiveness** of **database queries**
  - Worked on introducing a **versatile datatype-column** in the database framework for an *application's adaptable design*
  - Developed **Backend APIs** to **streamline processes** and **enhance efficiency** by reducing engineering efforts and time
- <u>**Research Internship at** *University of Strathclyde, Scotland*</u> **(Prof. Mujeeb Ahmed)**   (Jun 2022 - July 2022)
  - Worked with **cyber security group** in the Strathclyde University on **Side-Channel Analysis** on water treatment plants
  - Analysed the importance of multiple audio features - **MFCCs, Fourier Transforms, Spectograms** in Pump prediction
  - Compared accuracy in models: **Neural Networks and Regression** by libraries *sklearn, keras* to train and test datasets

PROJECTS

- <u>**Detection and Mitigation of Bias in Language Models (Prof. Aaditeshwar Seth, CSE, IITD)**</u>   (Mar 2023 - Apr 2023)
  - Analysed **state of the art Language models** using detection techniques - **WEAT, Log Probability Score, Stereo-Set**
  - Implemented gender-debiasing method **Hard De-Bias** on popular embeddings, tested it using **Counter-factual model**
- <u>**Kernel level Modifications in xv6 Operating System (Prof. Smruti Ranjan Sarangi, CSE, IITD)**</u> (Feb 2023 - Apr 2023)
  - Developed **multicast InterProcess communication** via *system calls* and modified **Real time scheduling** algorithm
  - Implemented **Address Space Layout Randomisation** to prevent **buffer overflow attack** of **memory layout** of kernel
- <u>**Image Classification using Convolutional Neural Network (Prof. Chetan Arora, CSE, IITD)**</u>   (Mar 2023)
  - Developed **CNN** from scratch using **Python**. *Boosted computations* for weight propagation using **numpy vectorisation**
  - Classified **CIFAR-10** data-**84% validation accuracy** in **dropout, batch and group normalisation** improvised **CNN**
- <u>**Intelligent Driverless Car using Probabilistic Reasoning (Prof. Rohan Paul, CSE, IITD)**</u>   (Oct 2022 - Nov 2022)
  - Implemented a route-tracker via **particle filtering** on *Hidden Markov Model* of **noisy observation** of *moving obstacles*
  - Planned a **safe path** for the car using **shortest path fnding algorithms** and **greedy heuristics** to reach sequence of goal
- <u>**Construction of PSP Network Using TCP & UDP (Prof. Abhijnan Chakraborty, CSE, IITD)**</u>   (Aug 2022 - Sep 2022)
  - Used **Socket programming** in python to design a **Peer-Server-Peer network** for file transfer among **client-server**
  - Analysed, compared the statistics of data transfer via **TCP and UDP connections** in terms of **reliability and speed**
- <u>**Two-player Online IIT Delhi Based Maze Game (Prof. Rijurekha Sen, CSE, IITD)**</u>   (Apr 2022 - May 2022)
  - Developed a **2-Player** game on the maze based on IIT Delhi campus implemented in C++ **Standard Direct-Media Layer**
  - Used **Socket Programming** for transferring **data buffer** including state and dynamics of player between **server-client**
- <u>**Recursive Decent Parser and Token Generator for WHILE (Prof. S. Arun Kumar, CSE, IITD)**</u>   (Feb 2022 - Mar 2022)
  - Compiled a dummy While programming language by generation of symbol token, **AST** by **lexical and semantic analysis**
  - Used Parser Generator **ML-Yacc** and Token generator **ML-Lex** for generating an **Abstract Syntax Tree** by EBNF rules
- <u>**MultiCycle ARM Based Micro-Architecture Processor (Prof. Anshul Kumar, CSE, IITD)**</u>   (Feb 2022 - Mar 2022)
  - Developed a **multicycle primary processor** for Read/Write in memory and Arithmetic-computation implemented in VHDL
- <u>**BlockChain project in Data Structures and Algorithms (Prof. Venkata Koppula, CSE,IITD)**</u>   (Oct 2021 - Nov 2021)
  - Implemented a dummy **cryptocurrency prototype** *DScoin* in **java** with support for malicious and honest Block-Chain
  - Used Advanced DS **Merkle Tree** for creation of secured transaction blocks and hashed by **Collision Resist Function**

STITIPRAJNA SAHOO

IIT COURSE

Degree	Institute	CGPA
B.Tech in Computer Science & Engineering	Indian Institute of Technology Delhi	8.44

COURSES DONE

Linear Algebra & Diffe. Equa., Calculus, Intro. To Computer Science, Discrete Mathematical Structur, Digital Logic & System Design, Data Structures And Algorithms, Signals And Systems, Computer Architecture, Programming Languages, Design Practices, Principles Of Artificial Int., Analysis & Design Of Algorithms, Introduction To Ethical Issues In Computer Science, Operating Systems, Intro To Automata & Th. Of Co., Machine Learning

QUALIFYING EXAM

• **Joint Entrance Examination (JEE) Advanced Rank:** 365 (GE)

INTERNSHIPS

• Software Developer Intern, Arcesium India Pvt. Ltd. (2023)

EXTRA CURRICULAR ACTIVITIES

• Performed (Duet Competition), Encore '21 (March, 2021 - June, 2021)
• Member (Indian Music Society), Mridang (August, 2020 - June, 2021)
• Activity Head Kaizen, Kaizen (February, 2022 - April, 2022)
• Executive, Executive (July, 2021 - May, 2022)
• Mixtape Winner, Indian Vocals Category (July, 2021 - May, 2022)
• Winner, Overdrive - Winner (July, 2021 - May, 2022)
• First Runner-Up, BRCA Trophy (July, 2021 - May, 2022)
• 4th position, Mehfil (June, 2022 - May, 2023)

POSITIONS OF RESPONSIBILITY

• Executive, NSS (June, 2022 - May, 2023)