



Achhaya Pathak

Roll No: 212123003

MSc Mathematics and Computing

Indian Institute Of Technology, Guwahati

+91-8318842288

achhayapathak11@gmail.com

[Github](#) | [GFG Profile](#)

[linkedin.com/in/achhayapathak](https://www.linkedin.com/in/achhayapathak)

EDUCATION

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
M.Sc. Mathematics and Computing	Indian Institute of Technology, Guwahati	8.0	2021-2023
B.Sc.(Hons) Mathematics	Hansraj College, University of Delhi	9.1	2018-2021
Senior Secondary	CBSE Board	96%	2018
Secondary	CBSE Board	10	2016

EXPERIENCE

- **Research Project** January 2023 - April 2023
Dr Kalpesh Kapoor, HOD, Dept of Mathematics, IIT Guwahati [Project Report](#)
 - Successfully solved the problem of **Optimal Payment Splitting** in the **Lightning Network**.
 - Studied the Blockchain trilemma and its resolution through the Lightning Network's scalability solutions.
 - Designed an **efficient fee structure** for the Lightning Network to **prevent network saturation** and **ensure network liquidity**.
 - **Developed a Dynamic Programming algorithm to minimize user expenditure** on fees during payment transactions.

PROJECTS

- **CCTV Anomaly Detector** July 2022 - September 2022
Coding Club, IIT Guwahati [Website](#) | [GitHub](#)
 - Developed a model using **ConvLSTM** layers for **Spatio-temporal** data capable of **detecting abnormalities on CCTV footage** using **Deep Learning** techniques.
 - Programmed a **pipeline** to transform input videos into tensors by extracting frames using **OpenCV**.
 - Designed the structure and deployed the application on **Streamlit**.
 - Tools/Technology used: Keras, OpenCV, Streamlit
- **IITG Buy and Sell Portal** August 2022 - November 2022
Dr Ashok Singh Sairam, Dept of Mathematics, IIT Guwahati [GitHub](#)
 - Built a fullstack **online marketplace** for IITG Campus that would facilitate the users to **buy and sell used goods**.
 - Curated a **user sign-in sign-up authentication** and framing a set of **filters** to facilitate **specific product searches**.
 - Tools/Technology used: HTML, CSS, PHP, MySQL
- **DeFin - An Ethereum Wallet** June 2022 - August 2022
Self [Website](#) | [GitHub](#)
 - A responsive platform that allows users to **send transactions** over the **Ethereum blockchain**.
 - Users can access the **latest transactions** along with **transaction logs** and **net transaction** for a specific address.
 - Worked on combining **ReactJS** application with **Ethereum wallet** and deployed **smart contract** on **Goerli Testnet**.
 - Tools/Technology used: ReactJS, Tailwind CSS, Solidity, MetaMask

TECHNICAL SKILLS

Programming: C, C++, Java

Database: MySQL, MongoDB

Web Technologies: HTML, CSS, ReactJS, Streamlit, PHP

Operating Systems: Windows, Ubuntu

KEY COURSES TAKEN

- **Computer Science:** Data Structures and Algorithms, Advanced Data Structures and Algorithms, Database Management Systems, Theory of Computation
- **Mathematics:** Graph Theory, Discrete Mathematics, Linear Algebra, Probability Theory, Differential Equations

ACHIEVEMENTS

- **GeeksForGeeks Practice:**
 - Institute **Rank 4** among **4500+** registered students from IIT Guwahati.
 - Solved **650+ DSA problems** with a score of **2400+ points**.
- **IIT JAM 2021:** Secured **All India Rank 110** among **13186** students in **Master's entrance exam**.
- **INSPIRE Scholar:** Received scholarship for securing a position in the **top 1% of all students in AISSCE 2018**.

EXTRACURRICULAR

- **Seminar on Proof of Work in a Blockchain Network**
 - **Analysed the problem addressed** in the original **Bitcoin paper** by Satoshi Nakamoto.
 - Presented the idea of **Digital Signatures** along with the use of **cryptographic hash functions** in comprehending the concept behind **Proof of Work**.
- **Event Head, IDENTITY:** Successfully managed and coordinated with a **team of 16 people** to conduct various games during the annual cultural fest of the Department of Mathematics, Hansraj College, that observed **500+ participation**.