



# Gautam Sharma

Roll Number: 210101042

B.Tech. - Computer Science and Engineering  
Minor in Data Science and Artificial Intelligence  
Indian Institute Of Technology, Guwahati

+91-8595312271

gautam.sharma@iitg.ac.in

gautam.sharma.iitg@gmail.com

Website | g-s01.github.io

github.com/g-s01 | linkedin.com/in/g-s01/

## EDUCATION

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B.Tech. Major	Indian Institute of Technology, Guwahati	8.73 (Current)	2021 - Present
B.Tech. Minor	Indian Institute of Technology, Guwahati	7.00 (Current)	2022 - Present
Senior Secondary	CBSE Board	95.20%	2021
Secondary	CBSE Board	95.80%	2019

## PROJECTS

### Quantum Powered Business Rule Engine 🚀

Dec 2023

Group Project, **Gold Medal, 12th Inter IIT Tech Meet, IIT Madras**

bit.ly/3tCRDCf

- Built a business rule engine using **Quantum Computing**, employing DWave's **dwave-system** which makes the process of re-accommodating passengers affected by flight delays/cancellation **easier and faster over classical methods**.
- Solved the famous **Passenger Recovery Problem** by formulating a mixed integer programme.
- For preprocessing, used **Prune and Search**, and **Multithreading**. Used **Dynamic Programming** to speed up the process.
- Solved the problem classically using **gurobipy**, and as a **CQM**, and **BQM** using **Quantum Annealing**.
- For post-processing, used **Flow Network Algorithms**, and displayed all the solutions using **Streamlit**.

### DDoc: Blockchain-based secure document ecosystem 🔒

Jan - Feb 2024

Group Project, **Kriti 2024, IIT Guwahati**

bit.ly/3SHtFYl

- Created a **decentralized ecosystem** to **issue, receive and verify** documents for organizations and individuals.
- Used **digital signatures** to prevent tampering of documents, and also implemented **Proof of Existence** for the documents.
- Used **Solidity**, and **Truffle** to deploy the smart contract on **Sepolia TestNet**, hosted APIs through **Python**, developed frontend using **Flutter**, used **IPFS** for **decentralized storage** and also made a **custom trained** chatbot to support the application.

### Investigating use of LLMs in verification of hardware design 🚀

Nov 2023

Group Project, **Guide: Dr. Chandan Karfa**

bit.ly/3O5bIbC

- Tested the capabilities of GPT-4 in **generating independent assertions** about a hardware design from Google's OpenTitan.
- Generated the assertions in **SVA** by giving verbal prompts and tested their validity in **EDA playground**.
- Found out a bug in Open Titan's implementation of ROM Control, devised methods to prompt engineer for the above tasks.

### Competitive Programming Helper Discord Bot 🤖

Dec 2022

Group Project, **Coding Club, IIT Guwahati**

bit.ly/3XBsRgl

- Built a discord bot using **discord.py** which makes the process of planning CP practice effortless for a user.
- Incorporated features such as: problem recommendation, track of rating changes, host duel between users, contest reminders, record all problems solved by a user, leaderboard, graphical statistics, support for Codeforces and AtCoder.
- Used **Firebase** for storing user data, **Beautiful Soup** for web-scraping, and **Codeforces, Clist**, etc. API for API calls.

### Eight puzzle solver 🧩

Oct 2022

Guide: **Prof. Pinaki Mitra** | Course Project: **System Software Lab**

bit.ly/46JbGO4

- Developed a program in **Python** which solves the famous eight-puzzle problem deterministically.
- Implemented the **A\* algorithm** on the manhattan distances between the cells and assessed the reachability condition of the final state from the start state by comparing the parity of inversions in the start and final states.

### Socket based Chat System 🗨️

Oct 2023

Guide: **Prof. Moumita Patra** | Course Project: **Networks Lab**

bit.ly/3PXnXrV

- Implemented a one server-multiple client program in C, supporting messages broadcast and one-to-one private chat.
- Used **pthread.h** library for **multithreading** and **socket.h** library for creating **TCP sockets**.

## ACHIEVEMENTS

**ICPC Mathura Prelims 2023:** Achieved **AIR 163 (6th in IIT Guwahati, all batches combined)** among 1000+ teams.

**Codeforces:** Achieved maximum rating of **1667 (Expert)** (Handle: *vimruLover*)

- Codeforces Round 881: Secured **Global Rank 90** among 28,000+ participants. (Handle: *g-s01*)
- Codeforces Round 874: Secured **Global Rank 236** among 30,600+ participants.

**AtCoder:** Achieved maximum rating of **1102 (5 Kyu)** (Handle: *vimruLover*)

- AtCoder Beginner Contest 308: Secured **Global Rank 634** among 10,000+ participants.
- AtCoder Beginner Contest 311: Secured **Global Rank 808** among 12,000+ participants. (Handle: *sharma\_gautam*)
- AtCoder Beginner Contest 295: Secured **Global Rank 998** among 9,700+ participants.

**CodeChef:** Achieved maximum rating of **1968 (4 stars)** (Handle: *sharma\_gautam*)

- Starters 94: Secured **Global Rank 59** among 2,400+ participants.
- Starters 64: Secured **Global Rank 80** among 3,300+ participants.

**LeetCode:** Achieved maximum rating of **2057 (Knight)** (Handle: *sharma\_gautam*)

- Weekly Contest 295: Secured **Global Rank 343** among 23,000+ participants.

- Biweekly Contest 106: Secured **Global Rank 509** among 23,000+ participants.

**12th Inter IIT Tech Meet:** Secured **Rank 1** among 100+ students from **20 IITs** in the **Quantum Computing Challenge**.

**APAC Terminal 2023:** Secured **Rank 4** at **Asia-Pacific Terminal** by **Citadel Securities** and **Correlation One**.

**Amazon ML Summer School 2023:** Selected to attend various AI/ML lectures by Amazon from students all over India.

**ICPC-de-Tryst-2023:** Secured **Rank 1** at ICPC-de-Tryst event held at IIT Delhi.

**Kriti-2023:** Secured **Rank 1** at Inter-Hostel competitive programming competition under Kriti'23 (Junior Section).

**Abstractify-2023:** Secured **Rank 3** among participants from top 8 IITs in the Quant Winter Trading School, IIT Delhi.

**Too Buggy:** Secured **Rank 2** (highest score, ties broken on seniority basis) in **Too Buggy CP** competition held at IIT Guwahati.

**JEE Advanced 2021:** Secured **AIR 530** among 0.15 million students across the country.

**JEE Mains 2021:** Secured **AIR 359** among 0.94 million students across the country.

**KVPY SX 2021:** Secured **AIR 397** and the KVPY scholarship given to **top 2000** students across the country.

**JSTSE 2018:** Secured **Rank 17 (out of 19,331)** and the JSTSE (now MVPP) scholarship given to **top 160** students in Delhi.

## TECHNICAL SKILLS

---

- **Programming:** C, C++, Solidity, Java, Python\*, JavaScript\*
- **Quantum Computing:** Qiskit, DWave
- **Miscellaneous:** L<sup>A</sup>T<sub>E</sub>X, Figma, Markdown, Bash\*
- **Database Management:** SQL
- **Optimization frameworks:** Gurobi, OR Tools

## KEY COURSES TAKEN

---

- **Computer Science:** Data Structures & Algorithms, Machine Learning, Formal Methods for System Verification, Computer Architecture & Organization, Database Management Systems, Computer Networks, Operating Systems
- **Mathematics:** Linear Algebra, Number Theory, Probability & Random Processes, Discrete Mathematics

## POSITIONS OF RESPONSIBILITY

---

- **Coding Club, IIT Guwahati**
  - **Competitive Programming Head (2023-24):** Organized **India's first Inter College Camp for ICPC**, with a partnership with 13 colleges, to deliver quality lectures and contests to **6,000** students. Conducted contests to help everyone prepare for job interviews.
  - **Coordinator (2022-23):** Created a course on fundamentals of C++, from **multithreading, streams, OOP** etc.
- **SOPAN-20**
  - **Live Class Coordination Team Leader 2023-24:** Mentoring and led the coordination of live classes among other logistics for 20 underprivileged students enrolled in the SOPAN-20 initiative of IIT Guwahati, to help them prepare for JEE.
- **Computer Science and Engineering Association (CSEA), IIT Guwahati**
  - **Mentor:** Mentored eight first-years to help them adapt to their new college life while also making them familiar with the institute.
- **Student Alumni Interaction Linkage (SAIL), IIT Guwahati**
  - **General Executive** Responsible for connecting with IITG Alumni for various workshops/talks/events for the benefit of the IITG junta/campus.

## EXTRACURRICULARS

---

- **Squash:** Represented Hostel in the Inter Hostel Competition Spardha, 2024.
- **Photography**