ARPIT MOGA

ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	B.Tech in Electrical Engineering (Power and Automation)	Indian Institute of Technology Delhi	7.58
2021	CBSE	Sun Valley International School	95.8 %
2019	CBSE	Sun Valley International School	97.8 %

INTERNSHIPS

• **Infosec Ventures , Gurgaon** (May, 2024 - Present, 2024) : ***Cyber Security Analyst Intern***
- Observed daily operation and **security protocol** to gain a comprehensive understanding of **cyber security practices**.
- Gained **hands-on experience** with security tool,software used for **vulnerability assessment, penetration testing**.
- Reviewed a company's **security reassessment** report, evaluating the status of our previous recommendations.
- Completed **training modules** and **online courses** on **cyber security fundamentals** and advanced topics.
- Created reports and **presentations**, summarizing our findings and **recommendations**.
- Participated in various team projects, enhancing my ability to **collaborate** and work effectively within a corporate environment.

PROJECTS

• **Page Rank Algorithm (Prof. S. Dharmaraja)(MTL-106)** *(April, 2024)*
- Implemented the **PageRank** search algorithm using stochastic matrices and Markov chains in **C++**,
- Developed a **scalable** solution capable of processing large web datasets (up to **100,000** pages) using **sparse matrix**.
- Enhanced the algorithm to handle edge cases such as **dangling** nodes and **non-irreducible** chains.

• **Advanced Document Q&A Tool, C++ (Prof. Subodh Sharma & Prof. Rahul Garg)(COL-106)** *(Nov, 2023)*
- Developed an efficient and a robust **natural language** - based question answering system given a text corpus.
- Pre-Proccesed the data by **Tokenization**, **Lemmatization** and used **(TF - IDF)** for accurately ranking the paragraphs.
- Integrated **Open Source LLM** in our algorithm to enhance the capabilities of handling complex user queries.
- Pre-Processed user's search query and Employed **Advanced Prompt-Engineering** to get more relevant results.

• **Expression Evaluator and Compiler, C++ (Prof. Subodh Sharma & Prof. Rahul Garg)(COL-106)** *(Oct, 2023)*
- Developed a **Symbol Table** using a **binary search tree** to evaluate expressions in a custom syntax called EPP.
- Integrated the UnlimitedInt class from our previous project to further enhance the functionality of our compiler.
- Upgraded the Symbol Table to an **AVL tree**, optimizing lookup, insertion, and deletion times from **O(n) to O(log n)**.
- Implemented a parser to convert EPP commands into the target language syntax for proper evaluation.

• **Document Processing and Searching, C++ (Prof. Rahul Garg & Subodh Sharma)(COL-106)** *(Oct, 2023)*
- Designed and implemented **pattern searching** and **word count tool**, similar to those typically found in PDF readers.
- Developed an efficient **Trie**-based dictionary to store the corpus and obtain word counts in **O(length of query)** time.
- Implemented a **hash**-based pattern searching tool to find occurrences of **search query** within the stored corpus.
- Analyzed and optimized memory usage to handle large corpora efficiently, ensuring it works on extensive datasets.

• **Unlimited Integers & Rationals, C++ (Prof. Subodh Sharma & Prof. Rahul Garg)(COL-106)** *(Sept, 2023)*
- Implemented UnlimitedInt for **arbitrary-precision** arithmetic, supporting add, subtract, multiply and divide operations.
- Provides **arithmetic** operations (add, sub, mul, div) that maintains rational number integrity and handle **edge cases**
- Having a TC of **O(n)** in add/sub of INT and O(n x m) in mul/div/mod of INT and RAT, on any arbitrary size of digits.

• **Safety Vault FSM (Prof. Manan Suri & Prof. Dhiman Mallick)(ELL-201)** *(Apr, 2024)*
- Developed a robust **Finite State Machine** using **CPLD** and **Verilog**, enabling secure access control to a **safety vault**.
- Implemented various states, managing **LED** indicators, **7-segment display** outputs, and password reset functionality.
- Utilized **combinational** and **sequential logic circuits** to handle complex transitions between various states.
- Simulated the FSM behavior using software tools by creating testbenches to verify logic correctness before hardware implementation.

TECHNICAL SKILLS

• **Programming** - Python, C++, Matlab ,Verilog, HTML ,CSS, MySQL.
• **Softwares** - Burpsuite, MATLAB, Auodesk Inventor, Quartus Prime, LTspice, MS Office.

EXTRA CURRICULAR ACTIVITIES

• **Second Runner-up** in **Biscuits** *(2024)*
- Participated in Biscuits, a circuit building and simulating competition hosted by Tesseract during Tryst 2024.
- Developed a Bluetooth speaker system using an **ESP-32 microcontroller**, enabling wireless audio streaming.

• **International Quant Championship 2024** | World Quant: Alpha making competition *(19, Mar, 2024 - 25, Jun 2024)*
- **Stage 1**: Secured a global rank of **161** out of **34145** participating teams, and an institute rank of **5** out of **498** teams.

Disclaimer: All the information on this page is entered by student.

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IIT COURSE

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B.Tech in Electrical Engineering (Power and Automation)	Indian Institute of Technology Delhi	7.58

COURSES DONE

Engg. Visualization & Comm., Engineering Mechanics, Calculus, Intro. To Electrical Engg., Electromagnetic Waves & Qua.mec., Linear Algebra & Diffe. Equa., Intro. To Computer Science, Physics Laboratory, Circuit Theory, Electromechanics, Signals And Systems, Data Structures And Algorithms, Probability & Stochastic Pro., Control Engineering I, Electromechanics Laboratory, Power Electr. & Energy Devices, Microeconomics, Digital Electronics

EXTRA CURRICULAR ACTIVITIES

• Third, BISCUITS: Build and Simulate Circuits - EES