



Ayushmaan Kumar Verma

Roll No.: 2559005

Dual Degree (Btech + Mtech)

Mathematics and Computing Technology

National Institute of Technology, Patna

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GitHub Profile

LinkedIn Profile

EDUCATION

•National Institute of Technology, Patna

2030

Btech + Mtech in Mathematics and Computing Technology

CGPA : 7.90

•Vidya Niketan School

2024

Central Board of Secondary Education

Percentage : 83.6

•St. Joseph's High School

2022

Central Board of Secondary Education

Percentage : 93.4

PERSONAL PROJECTS

•ELDA – C++ Linear Algebra Library

April 2026

A modular C++17 linear algebra library supporting matrix operations, decompositions, & geometric transformations.

- Built a modular C++17 linear algebra library implementing a custom dense matrix class using STL (std::vector).
- Implemented core operations: matrix arithmetic, Gaussian and Gauss-Jordan elimination, determinant, inverse, rank, and system solving.
- Designed advanced features including LU and QR decomposition, Gram-Schmidt orthonormalization, and eigenvalue computation using QR iteration.
- Developed 2D/3D transformation utilities (rotation, scaling, translation) using homogeneous matrices.
- Tools & technologies: C++, GCC, Linux, STL, CMake, CLion

GitHub Repository

•CIPHER – AI-Safe Cryptosystem

December 2025

A lightweight text encryption system using nonlinear transformations and position-based bitwise operations.

- Designed and implemented a custom cryptosystem in C using multi-layer transformations including character reversal, segment flipping, and position-dependent XOR operations.
- Developed symmetric encryption-decryption algorithms ensuring reversibility using XOR properties and structured transformations.
- Engineered a nonlinear encryption pattern resistant to frequency analysis and AI-based decryption by eliminating statistical and linguistic cues.
- Built a menu-driven CLI application supporting encryption, decryption, and safe input handling using fgets() and buffer management.
- Tools & technologies: C, GCC, Linux, Bitwise Operations

GitHub Repository

TECHNICAL SKILLS AND INTERESTS

Languages: C/C++, Python

Developer Tools: Linux, CLion, PyCharm, VS Code, Git, GitHub, CMake

Libraries/Frameworks: SFML

Cloud/Databases: MySQL

Soft Skills: Problem Solving, Analytical Thinking, Logical Reasoning, Communication, Team Collaboration

Coursework: Data Structures & Algorithms, Discrete Mathematics, Probability & Statistics, Linear Algebra,

Differential Equations, Complex Analysis, Operating Systems, Database Management Systems, Artificial Intelligence

Areas of Interest: Mathematical Modelling, High-Performance Systems, Competitive Programming, Parallel Computing

CODING PROFILE

Codeforces (ayushmaan_verma) Rating: 858 | Max: 884

ACHIEVEMENTS

•Qualified JEE Advanced 2025 Examination

June 2025