

ASHWIN KHANDELWAL

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2K23/CS/093

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EDUCATION

Examination/Degree	Year	Institution	Marks/CGPA
B.Tech (Computer Engineering)	2023-2027	Delhi Technological University, New Delhi	8.40
AISSCE/CBSE (Class XII)	2023	Delhi Police Public School	91.2%
AISCE/CBSE (Class X)	2021	Delhi Police Public School	95.8%

ACADEMIC PROJECTS

Academic Info Management System — MERN Stack | [GitHub](#)

- Built a full-stack platform for course registration and mentorship, managing **50+ simulated student records**.
- Implemented RBAC with JWT authentication; blocked **90%** of unauthorized access attempts.
- Optimized MongoDB queries with indexes, reducing average query latency by **60%**.
- Integrated React + Redux frontend achieving **95% test pass rate**.

N-Body Simulation using Fast Multipole Method — C++/OpenGL | [GitHub](#)

- Reduced simulation complexity from $O(n^2)$ \rightarrow $O(n \log n)$ and eventually $O(n)$; achieved **70% faster runtime** on **10k+ particles**.
- Designed quadtree-based partitioning, boosting throughput by **2x**.
- Visualized interactions in OpenGL at **50+ FPS** with pan, zoom, and playback support.

WhatsApp Codeforces Bot — Python/Flask/Node.js | [GitHub](#)

- Automated delivery of **100+ problems weekly** to **15+ users**, personalized by difficulty.
- Ensured **99%+ delivery success** with retry/backoff in Twilio WhatsApp API.
- Increased engagement by **25%** through personalized recommendations stored in MongoDB.

TECHNICAL SKILLS

Programming: C++, Python, JavaScript	Web: ReactJS, NextJS, NodeJS, Flask	Data/DB: PostgreSQL, MongoDB, Pandas, NumPy, Matplotlib
Systems: Algorithms, OS, DBMS, CN	Tools: Git, GitHub, OpenGL, Web-Socket, Canva	

RELEVANT COURSEWORK

- Data Structures and Algorithms, Operating Systems, Database Management Systems, Computer Networks

ACHIEVEMENTS & ACTIVITIES

- Solved **500+ problems** across Codeforces/LeetCode; best rank: **Top 15%**.
- Certifications: Graphs Camp (AlgoUniversity), AWS APAC Solutions Architecture (Forage).