Sudhanshu

Bachelor of Technology
in Mechanical Engineering
Indian Institute Of Technology, Ropar

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GitHub | Website
Linkedin

Education

Degree	Institute/Board	CGPA/Percentage	Year
Bachelor of Technology	Indian Institute of Technology, Ropar	7.29 (Till 4th Sem)	2023-2027
Senior Secondary	Rajasthan Board of Secondary Education	84.40%	2022
Secondary	Rajasthan Board of Secondary Education	91%	2020

Projects

- **Checkers Game** *April 2025 - June 2025*
  C++, 2D Array,Graph, Minimax Algorithm **Github**
  – Developed a checkers game in C++ using a 2D array to represent the board and unique values for pieces.
  – Implemented turn-based moves, capturing, promotion, and game end conditions.
  – Used the minimax algorithm with fixed-depth search for an optimal AI opponent.
- **ClinIntel - Hopsital Management Website** *March 2025 - June 2025*
  Web Development Project **Visit Site | GitHub**
  – Developed and implemented, a comprehensive Hospital Management System leveraging the MERN stack, providing an efficient solution for streamlining various administrative and clinical tasks.
  – Efficiently managed registrations for doctors, nurses, and ambulances, while enabling streamlined appointment scheduling and report generation leading to enhanced communication and coordination among healthcare teams.
  – Technologies Used- Node.Js, Express.Js, React.Js, MongoDB
- **KD-Tree** *Oct 2024 - Dec 2024*
  C++, Data Structure and Algorithms, KD-Tree, KNN, Median of Medians **Github**
  – Implemented a KDTree in C++ to efficiently find the nearest k d-dimensional points to a specified d-dimensional point with an average time complexity of O(klogk*dlogn).
  – Achieved a creation time complexity of O(d*nlogn) from an array or vector using algorithms like Median of Medians. Priority Queue was used to perform the search of k Nearest Neighbour to a point.

Minor Projects

- **Branch-predictor**
  – Implemented a C++ branch predictor to enhance instruction execution and branching efficiency. **GitHub**
- **Codeforces Analysis API**
  – A API that delivers detailed analytics on Codeforces problems, user submissions, and contest performance. **GitHub**
  – Implemented using HTML, CSS ans JavaScript.
- **Chat App**
  – A responsive real-time chat app. **Visit Site | GitHub**
  – Built with WebSockets for instant messaging, user presence and message history.

Technical Skills

- **Programming Languages**: C++, Python, Rust, JavaScript, TypeScript, SQL, Arduino.
- **Development tools**: Git, GitHub, Code Editor (VS Code, Cursor), Postman.
- **WebDevelopment**: HTML, CSS, JavaScript, Tailwind CSS, TypeScript, React, NextJs, NodeJs, Postgress, Prisma, Monorepo, MongoDb, WebSocket, Pub Subs(Redis), Poem, Tokio, Serde, Diesel.
- **Devops**: CI/CD pipeline, Docker, Nginx(Reverse Proxies), Certbot(certificate management), Process Management(PM2), Newrelic, Prometheus and Grafana, AWS(EC2), Digital Ocean, Serverless(Cloudflare), Kubernetes(K8s).
- **Competitive Programming**: Quite experienced in competitive programming and have a good grasp on data structures and algorithms.

Key courses taken

- **Mathematics**: Probability and Statistics, Linear Algebra and Integral Transforms, Calculus, Differential Equations.
- **Mechanical**: Theory of Machines, Fluid Mechanics, Solid Mechanics, Thermodynamics, Engineering Mechanics.
- **Others**: Introduction to Computing and Data Structures, Economics, Basic Electronics.
- **Additional Certified Courses**: Web Development, DevOps.

Miscellaneous

- **Achievement 1**, Shortlisted for the Website Development Internship | **Link** *2025*
- **Achievement 2**, Secure AIR 9863 among 150K candidates in JEE Advance | **Link** *2023*
- **Achievement 3**, Get 98.18 percentile in JEE Mains | **Link** *2023*
- **Specialist on Codeforces**, Max Rating 1497 on handle Sudhanshu_Gaur | **Sudhanshu_Gaur** *2025*
- **3 Star on Codechef**, Max Rating 1765 on handle sudhanshu_g | **sudhanshu_g** *2025*