



SANKET ROUT



ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	B.Tech in Mechanical Engineering	Indian Institute of Technology Delhi	8.37
2023	CBSE	SAI International School BBSR	95.8
2021	CBSE	DAV Public School, CSPur, BBSR	94

SCHOLASTIC ACHIEVEMENTS

- **Merit List Awardee:** Recognized for exceptional academic performance (**top 7%**) in second semester (2024-25)
- **Competitive Programming:** Achieved max rating of **1905 (CM apollo07)** in Codeforces, **1856 (4-star ruez)** in Codechef
- **Government Olympiads:** Qualified for **INJSO 2020**, **INMO 2021** and **INPhO, INChO, INAO** in NSEs 2023
- **Kishore Vaigyanik Protsahan Yojana (SA):** Secured **All India Rank 440** in **KVPY** by IISc, Bangalore (2022)
- **Zonal Informatics Olympiad (ZIO):** Odisha **State Topper** and qualified for **INOI** by IARCS (2022)
- **National Talent Search Examination:** Recipient of **National Talent Search Scholarship** by NCERT (2021)
- Awarded **Satish Chandra Pushpa Agarwal Scholarship** for the consecutive academic years 2023-24, 2024-25

PROJECTS

- **Dots & Boxes AI Agent using DQN and PPO** | github.com/SanketRt/dabi (June 2025)
 - Developed **Dots & Boxes AI** using **Deep Q-Network (DQN)** with **Dueling architecture**, achieving **98%** win rate
 - Implemented **Proximal Policy Optimization (PPO)** agent with **actor-critic** and generalized advantage estimation
 - Applied advanced RL techniques: prioritized **experience replay**, **target networks**, and **epsilon-greedy** exploration
 - Built using **PyTorch** framework with **clipped surrogate loss** optimization for strategic gameplay on 5x5 grids
- **Cryptocurrency Exchange Platform** | github.com/SanketRt/exchange (March, 2025 - June, 2025)
 - Built full-stack crypto trading platform with **React/Node.js** featuring real-time charts, order books & live market data
 - Developed **market simulation engine** with multi-layered price algorithms, volatility modeling & order flow
 - Implemented real-time data processing using **WebSockets**, **TimescaleDB** for time-series data & **Redis** caching
 - Designed **RESTful API** architecture with endpoints for market data, order management & health monitoring
- **Algorithm Visualization Toolkit** | github.com/SanketRt/AlgoViz (June, 2025)
 - Developed **AlgoViz**, a Python toolkit for real-time visualization of **maze-solving** and **convex hull** algorithms
 - Implemented **BFS, DFS, Dijkstra, A-star** pathfinding and **Jarvis March, Graham Scan** convex hull algorithms
 - Built **Sudoku backtracking visualizer** with puzzle generation, animated placements, and GIF export
 - Created benchmarking system using **Matplotlib** to analyze timing and path efficiency across maze sizes
- **CFD: Numerical Solvers for PDEs (Research Project)** | Prof. Anurag Goyal (May, 2025 - Ongoing)
 - Implemented **numerical solvers** for 1D transport and 2D heat conduction using **finite difference** & **TDMA** methods
 - Developed iterative solvers (**Jacobi, Gauss-Seidel, SOR**) for 2D Poisson equation, achieving **10x speedup**
 - Solved **lid-driven cavity problem** using **explicit projection method**, validated against benchmark results
- **8-Bit Digital-To-Analog Converter (Course Project)** | Prof. Gourab Ghatak (March, 2024 - April, 2024)
 - Developed **8-bit DAC** using **741 op-amp** and **R-2R ladder network** for precise parallel digital-to-analog conversion
 - Gained proficiency in **analog circuit design, op-amp applications, and signal processing** through hands-on testing

TECHNICAL SKILLS

- **Languages & Tools:** Python, C/C++, Java, SQL, CSS, JavaScript, LaTeX, SolidWorks, Git, Docker, Kubernetes
- **Libraries/Frameworks:** Numpy, Matplotlib, Bootstrap, Flask, Imageio, Pygame, Django, PyTorch, React, Node.js

EXTRA CURRICULAR ACTIVITIES

- Achieved top rankings in **CodeChef Weekend Dev Challenges:** Rank **3** (Challenge III) and Rank **17** (Challenge II)
- Achieved rank **24** in **Algomania-2025**, a competitive programming contest hosted by **CCIS, IIT Kharagpur**
- **Chess:** Achieved peak rapid ratings of **1708** on Chess.com and **1959** on Lichess with consistent performance
- **Blood Donation Volunteer** at **BloodConnect, DKMS** through **National Service Scheme (NSS)**, IIT Delhi

POSITIONS OF RESPONSIBILITY

- **Creative Coordinator** | **Rendezvous 2024, IIT Delhi** (August, 2024-October, 2024)
 - Spearheaded complete **visual identity** and **brand design** for the festival with **300+** events and **20K+** participants
 - Designed comprehensive branding portfolio: **logos, promotional materials, digital content & merchandise**
- **Security Activity Head** | **Rendezvous 2024, IIT Delhi** (October, 2024)
 - Led security operations for **1,60,000+** attendees at flagship 4-day cultural festival from **1200+ colleges, 15+ countries**
 - Coordinated **secure logistics** and **access** for high-profile performers, ensuring confidentiality compliance



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IIT COURSE

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B.Tech in Mechanical Engineering	Indian Institute of Technology Delhi	8.37	15

COURSES DONE

Calculus, Intro. To Electrical Engg., Intro. To Computer Science, Linear Algebra & Diffe. Equa., Fluid Mechanics, Introduction To Statistics, Energy Systems And Tech., Data Structures And Algorithms, Microeconomics

QUALIFYING EXAM

- Joint Entrance Examination (JEE) Advanced Rank: 1660 (GE)

POSITIONS OF RESPONSIBILITY

- reative Cordinator, Rendezvous'24, BRCA , Security Ahead, Rendezvous'24, BRCA