Gurjot Singh

Computer Science and Engineering
Chandigarh College of Engineering and Technology (Degree Wing)

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Education	Institute	Year	CGPA/%
BE in Computer Science and Engineering	Chandigarh College of Engineering and Technology (Degree Wing)	2022-26	7.85 (till 5th Semester)
Class XII	Government Model Senior Secondary School Sector-32	2020-21	79.4%
Class X	St. Xavier's Senior Secondary School	2018-19	88.4%

PROFESSIONAL SUMMARY

I am a Computer Science and Engineering student with expertise in full-stack development, machine learning, and cybersecurity, demonstrated through internships at DRDO and diverse technical projects. My skills span modern programming languages, frameworks, and databases, with experience in secure communication systems, network monitoring, and AI-based solutions. I am passionate about solving complex technical challenges and contributing to innovative software development.

INTERNSHIP

- **Terminal Ballistics Research Laboratory (TBRL), Defence Research and Development Organisation (DRDO),** *Industrial Trainee* *(June'25 - July'25)*
  - Developed a secure peer-to-peer communication system using hybrid encryption (RSA for key exchange, AES for message encryption) with multithreaded architecture, enabling real-time encrypted messaging in offline/LAN environments without third-party dependencies.
  - Built a comprehensive network performance monitoring tool with client-server architecture using Python and Flask, featuring real-time bandwidth testing (upload/download speeds, latency, jitter, packet loss), MySQL database integration for test logging, and automated SMS alerts via Twilio API when performance thresholds are exceeded.
- **Chandigarh College of Engineering and Technology (Degree Wing),** *Research Intern* *(June'24 - July'24)*
  - Developed AI-based traffic prediction system using GRU regression model with Python (Keras, TensorFlow, Sklearn), processing 2015-2017 traffic datasets with data preprocessing, normalization, and hourly aggregation for accurate flow forecasting.
- **Chandigarh College of Engineering and Technology (Degree Wing),** *Summer Trainee* *(June'23)*
  - Developed interactive "Turtle Wars" game using Python Turtle graphics with player movement controls, enemy AI, bullet mechanics, collision detection algorithms, and real-time score tracking system.

PROJECT

- **Distributed Library Management System**
  - Developed a multi-user library management system using Java OOP principles with MySQL database backend, implementing user authentication, book inventory tracking, and automated fine calculation with complete CRUD operations.
  - Integrated network security protocols and multi-threading for concurrent user access, featuring real-time notifications and RESTful API design following software engineering best practices.
- **Smart Campus Network Security Monitor**
  - Built a network traffic analysis tool using Python and packet capture libraries to detect suspicious activities, implementing custom data structures (hash tables, priority queues) for efficient traffic pattern recognition and anomaly detection.
  - Designed secure client-server architecture with encrypted communication protocols, featuring real-time dashboard for network administrators with automated threat response mechanisms.

- **Optimized E-Commerce Database with Recommendation Engine**
  - Architected a scalable e-commerce database system with advanced SQL optimization techniques, implementing complex joins, indexing strategies, and stored procedures to handle 10,000+ concurrent transactions.
  - Developed intelligent product recommendation algorithm using graph data structures and dynamic programming, reducing query response time by 40% through efficient caching and algorithm optimization.
- **Multi-Process Task Scheduler Simulation**
  - Created an operating system process scheduler simulator in C++ implementing multiple scheduling algorithms (FCFS, SJF, Round Robin) with memory management simulation and process synchronization mechanisms.
  - Designed comprehensive performance analysis dashboard comparing algorithm efficiency using statistical metrics, demonstrating deep understanding of OS concepts and system optimization.
- **Secure Social Media Platform with Real-time Messaging**
  - Developed full-stack social media application using object-oriented design patterns, implementing secure user authentication, post management, and real-time chat functionality with encrypted message transmission.
  - Integrated advanced data structures for efficient content delivery, implemented robust database design with proper normalization, and applied software engineering methodologies including version control and automated testing.

PROFESSIONAL SKILLS

- **Programming Languages:** JavaScript, Python, Java, C, C++, MATLAB, Bash, Zsh, Batch, HTML5, CSS3, LaTeX
- **Frameworks & Libraries:** React, Next.js, Django, Flask, Spring Boot, Tailwind CSS, pandas, NumPy, Matplotlib, scikit-learn, TensorFlow, PyTorch
- **Databases:** MySQL, Oracle Database, MongoDB, Redis
- **Tools & Platforms:** Node.js, AWS, Docker, Git, GitHub, Linux, Windows, macOS, Visual Studio Code, IntelliJ IDEA, WebStorm, PyCharm, Jupyter Notebook, Google Colaboratory
- **APIs:** Twilio

EXTRA-CURRICULAR

- **Active in solving coding problems across various difficulty levels on LeetCode, CodeChef, Codeforces**
- **Participated in machine learning competitions and data science challenges on Kaggle**