Pratyut

Plot Number 15, Shanti Nagar, P.O. Sarojini Nagar, Lucknow, Uttar Pradesh - 226008
9695570887 pratyut987@gmail.com linkedin.com/in/pratyut-/ github.com/PratyutCS

Education

BML Munjal University, Gurgaon **November 2021 – September 2025**
Bachelor of Technology in Computer Science And Engineering *Current CGPA: 7.54/10*

City Montessori School, Lucknow **April 2017 – March 2021**
ISC/ICSE *Percentage: 94.75%/91.87%*

Relevant Coursework

- Attack and Defence
- Data Structures
- Computer Networks
- Database Management
- Security Audit
- OOP using C++
- Blockchain
- Operating System

Experience

IIT Bhilai **January 2025**
Intern *Bhilai, Chhattisgarh*

- Implemented parallel computing solutions utilizing **CPU/GPU multi-threading** in **C** to optimize detection of weak **2048-bit RSA** keys vulnerable to factorization attacks.
- Developed and optimized **C** code for concurrent processing across multiple cores, contributing to research methodology for identifying cryptographic vulnerabilities in **RSA** key generation and validation processes.

BML Munjal University **January 2025**
Software Developer *Kapriwas, Haryana*

- Developed a full-stack web application, **Course File Generator**, that automates course file compilation for professors by leveraging AI to extract key details from course handouts and auto-fill required forms, reducing manual processing time by **85-90%**.
- Engineered backend using **Node.js, Express, Python** and frontend with **React.js**, incorporating features such as Excel uploads, PDF views, and automatic data visualization to streamline workflows and ensure uniformity in course files.

ArcData **January 2024 – February 2024**
Frontend Developer *January 2024 - February 2024*

- Developed a fully responsive, interactive website using advanced CSS and JavaScript techniques—including horizontal scrolling, 3D image tilting, and dynamic text animations—that boosted user visits by **20%** compared to competitors.
- Designed an ergonomic, sporty-themed UI optimized for over **87%** of devices, ensuring a seamless and engaging user experience during a focused 2-month project.

BML Munjal University **June 2023 – August 2023**
Research Assistant *Kapriwas, Haryana*

- Conducted research under Professor Kiran Khatter on embedding invisible watermarks into images and videos using Least Significant Bit (LSB) and Discrete Cosine Transform (DCT) techniques.
- Implemented LSB-based watermarking by modifying the least significant bits of image pixels to embed hidden data, ensuring minimal perceptual difference in the watermarked images.
- Applied DCT-based watermarking by embedding information into the frequency domain of images, enhancing robustness against various attacks.

BML Munjal University **December 2022 – July 2024**
Software Developer *Kapriwas, Haryana*

- Spearheaded development of database management system using **EJS, Node/Express, MongoDB**, enabling **28%** paperwork reduction across 11 departments and Designed event report system using **Flutter, Node.js, MongoDB & JWT**, achieving **95%** faster report generation
- Led IQAC full-stack webpage development, reducing file search time by **86%** and implemented data quality measures, reducing workload by **60%**

Projects

Blockchain | *PYTHON* **Github**

- Developed a fully **decentralized blockchain** implementation for cryptocurrencies from scratch, utilizing the **latest cryptography protocols**.
- Employed **peer-to-peer technology** and networks to enhance communication efficiency, achieving a 4% improvement in mining time through **multi-threading on the CPU**.
- Applied robust error handling mechanisms, enabling automatic transitions.

VC car | *ARDUINO, EMBEDDED C* **Github**

- Engineered a dual-mode vehicle control (VC) system featuring autonomous navigation using ultrasonic sensors for obstacle detection and avoidance
- Integrated Bluetooth functionality to enable manual override through an Android application, implementing both voice commands and joystick control for enhanced user interaction

Soundico | *JAVA, ANDROID* **Github**

- Developed an Android application using Java that streamlines sound recording and storage, simplifying the process for users.
- Implemented intuitive audio playback functionality, enabling users to easily review and manage their recordings.

Voxbox | *Full Stack Web App* **Github**

- Engineered a dynamic music streaming website featuring hybrid scrolling and an efficient music search functionality, coupled with active login/logout capabilities.
- Integrated flashy animations and 3D design elements to create a highly interactive user interface, elevating the overall user experience.

Breast Cancer Identifier | *Machine Learning, Streamlit* **Github**

- Developed a robust machine learning model for breast cancer identification, trained on the latest dataset to ensure high predictive accuracy.
- Deployed an interactive Streamlit application, offering a user-friendly interface for data input, real-time analysis, and visual result presentation.

Agriguru | *Flutter, Cloud, API Integration* **Github**

- Developed an interactive Flutter application that fetches NPK values and real-time weather data via location-based APIs.
- Integrated multi-cloud communication with Azure and AWS to provide fertilizer recommendations for optimal crop yield and predict future crop prices based on current market trends.

Chat Application | *Node.js, Socket.io* **Github**

- Developed a real-time group chat application leveraging the Socket.io library for seamless communication and active session management.
- Implemented robust login and logout functionalities, ensuring secure and efficient user authentication for a dynamic chat environment.

Reconware | *C2 Server, Embedded C* **Github**

- Developed a simulated C2 server, Reconware, demonstrating dual-mode Trojan behavior for cybersecurity research and penetration testing.
- Implemented a covert child process that gathers system information and exfiltrates data from specified directories to the C2 server, highlighting potential vulnerabilities.

Uno-AI | *AI, Q-learning* **Github**

- Implemented a table-driven Uno AI in the initial phase to automate decision-making during gameplay.
- Advanced the project by integrating Q-learning algorithms to dynamically adapt strategies and enhance competitive performance.

Dip Project | *Image Watermarking, Python Full Stack* **Github**

- Implemented an invisible watermarking technique using DCT and LSB methods, capable of embedding text or image watermarks within digital images.
- Developed a full stack Python application to host the watermarking process, providing a user-friendly interface for both embedding and extraction operations.

BeeHive | *RUST, REACT* **Github**

- Developed and implemented a comprehensive **Windows Registry Hive analysis tool** using **Rust and React.js**, enabling efficient comparison and visualization of registry files through an intuitive interface for **forensic analysis**.
- Designed and implemented registry comparison functionality with optimized diff algorithms, enabling officers to efficiently analyze and identify changes between similar registry hives through an interactive dashboard interface.

HOBBY PROJECTS

Arp Poisoning Developed a tool to intercept and manipulate network traffic through ARP spoofing techniques.

Wi-Fi Penetration Conducted assessments to identify vulnerabilities in wireless networks and implemented security measures.

Video Frame Extractor Created a utility to extract individual frames from video files for analysis and processing.

Word to PDF Converter Designed an application to convert Word documents into PDF format, ensuring layout preservation. item**Multi-Image to PDF** Built a tool to compile multiple images into a single PDF document for easy sharing and archiving.

PDF Merger Developed software to merge multiple PDF files into a cohesive document.

P2P Network Implemented a peer-to-peer networking system to facilitate decentralized data sharing.

2D Snake Game Programmed a classic snake game with interactive gameplay and scoring features.

2D Tic-Tac-Toe Created a two-player tic-tac-toe game with a simple user interface.

Web Scraping with Puppeteer and Selenium Developed a Node.js application using Puppeteer and a Python application utilizing Selenium to automate the extraction of images from Google Images and scholarly articles from Google Scholar, facilitating efficient data collection for research purposes.

ACHIEVEMENTS

- 50+ Problem solved in LeetCode
- SIH college round qualifiers 2022
- ICPC regional qualifier
- Certified Microsoft Cybersecurity Analyst

Technical Skills

Languages: C, Cuda Programming, Rust, Python, Java, C++, HTML/CSS, JavaScript, Embedded C, GoLang, Dart, Bash
Developer Tools: VS Code, Excel, Android Studio, Git, VMWare, AWS, Azure, MongoDB, Postman, Nano, Vim
Technologies/Frameworks: Linux, Jenkins, GitHub, Flutter, Matplotlib, Seaborn, Numpy, Pandas, React, Express, puppeteer, FFmpeg, OpenCV, Nmap, Metasploit