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Bachelor of Technology in Computer Science and Design
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Education

Indraprastha Institute of Information Technology, Delhi   *2023-27*
Bachelor of Technology in Computer Science and Design

Projects

Intrusion Detection System || Github   *Mar 2025 - Mar 2025*
- Built a Python-based signature-driven IDS for Raspberry Pi 4, detecting over **95% of known port scanning attempts** with minimal CPU load (<10%)..
- Integrated **3+ real-time threat intelligence feeds**, enabling frequent signature updates and adaptive detection of new attack vectors.
- Achieved **real-time monitoring and automatic blocking** of suspicious traffic, reducing malicious connection attempts by **40%** in testing environments.

AirEdge || Github   *Mar 2025 - Apr 2025*
Guide: Dr. Kalpana Shankwar
- Engineered *AirEdge*, a gesture-controlled virtual air hockey game using **OpenCV** (30 FPS object tracking) and **Pygame,** enabling real-time mallet control via hand or arbitrary objects.
- Designed a custom vision pipeline using **colour histograms**, **Gabor filters**, **contour detection**, and **Kalman filtering** for robust object tracking and recovery from occlusions.
- Implemented multiplayer support using **WebSockets**, achieving <50 ms latency across clients with synchronised physics and scoring managed server-side for fairness and performance.

NovaBank || Github   *Sept 2023 - Dec 2023*
Guide: Dr. Vikram Goyal
- Developed *Nova Bank*, a modular JavaFX application with **MySQL backend**, supporting clients, staff, and admin roles.
- Implemented 20+ banking operations, including **account management**, **loan services**, and **real-time reporting**, with responsive UI and **dark-themed styling (#121212)** for enhanced UX.
- Designed advanced admin analytics: **loan type averages**, **staff loan leaderboards**, and **client loan cross-checks**, improving decision insights by over **40%** in simulated operations.
- Integrated animated transitions (fade/scale) and **adaptive layouts** for seamless UI experience across screen sizes.

Experience

Scientific Analysis Group Lab, DRDO   *May 2025 - Jun 2025*
Research Intern
- Analysed the Operating System Protection Profile (PP) under the **Common Criteria (CC)** framework, evaluating **20+ security functional and assurance requirements** for secure communications.
- Designed and implemented **symmetric encryption algorithms** using **AES (128/192/256-bit)** and **DES**, with complete key expansion, encryption, and decryption modules.
- Researched on **cryptographic PRNGs**, assessing them for **randomness, unpredictability, and performance** in secure system applications.

Technical Skills

Expertise Area: Applied Cryptography, Database Management System, Operating System, Data Structures and Algorithms (C++), Object Oriented Programming (Java)

Tools and Technologies: C++ STL, Git, Github, JavaFX, VSCode, IntelliJ IDEA, Vim, NeoVim, Wireshark, tcpdump, nmap, RaspberryPi, Arduino Uno, Linux, VM, UTM, Miro, Figma

Relevant Coursework: Data Structures & Algorithms, Operating Systems, Object Oriented Programming, Database Management System, Algorithm Design Analysis, Computer Organisation.

Achievements & Awards

- **Google Professional Cybersecurity Certificate**
- **A Grade** in Advanced Programming
- Solved over **250 questions** on **Leetcode**, **Codeforces** and **Coding Ninjas** combined.
- **Technical Council** Member @IIIT Delhi (AY: 2024-2025)