



ARINDAM SAL



ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	M.Tech in Cyber Security	Indian Institute of Technology Delhi	7.38
2024	B.Tech in Computer Science and Engineering	MCKV Institute of Engineering	9.59
2020	West Bengal Council of Higher Secondary Education (12th)	Santragachi Kedarnath Institution	83.6%
2018	West Bengal Board of Secondary Education(10th)	Tatarpur High School	92.71%

IIT DELHI THESIS

Title: Secure Boot and Trusted Logging for Automotive ECUs with HSM & TEE

Supervisor: Prof. Kolin Paul, Department of Computer Science and Engineering

Description:Building automotive microcontroller security stack to protect **ECUs** against firmware tampering, unauthorized modifications, and software attacks; Implementing **secure boot, trusted logging, and authenticated updates**, scaling from **Raspberry Pi** prototype to **Infineon AURIX™ TC375** with **HSM-backed** key storage and **TEE**-protected runtime.

- Implemented multi-stage validation (**Bootloader** → **U-Boot** → **Monitor**), ensuring only signed firmware executes.
- Prototyped secure boot on **Raspberry Pi**, achieving **100%** authenticated execution with **<5%** verification overhead.

PROJECTS

— IIT Delhi Course Projects —

- **Identity-Based Cloud Integrity Auditing With Data Hiding (Prof. Huzur Saran)** (March, 2025 - June, 2025) :
 - Developed **identity-based cloud integrity auditing** with sensitive data sanitization, achieving **70%** peak and **45%** average speedup through optimized privacy-preserving algorithms.
 - Implemented **parallel verification** with tamper-evident logging and multi-layered blinding, enabling **O(1)** audit scalability, **58% faster** processing, and strong resistance to tampering and privacy attacks.
- **Secure Communication & Web Application Security Testing (Prof. Huzur Saran)** (March, 2025 - April, 2025) :
 - Built a TLS client in Python (**ssl, socket**) implementing handshake, CA/hostname verification, and secure **HTTP communication**; validated via **Wireshark**.
 - Performed web vulnerability assessments using **Burp Suite and Nmap/NSE**, identifying **XSS, TLS/SSL misconfigurations, CVE-mapped services**, and recommending mitigations per **OWASP** guidelines.
- **Android Application Security Testing (Prof. Rajesh Pal)** (March, 2025 - May, 2025) :
 - Performed a security audit of a vulnerable Android banking app, identifying and exploiting flaws including insecure broadcast receivers, exported activities, weak cryptography (**hardcoded AES keys**), insecure logging, and plaintext HTTP transmission.
 - Used **Frida, Apktool, Burp Suite, Genymotion emulator, and ADB** to patch APKs, **bypass root detection, intercept network traffic, and manipulate parameters**; proposed mitigations aligned with Android security best practices.
- **Cryptographic Secure Messaging System using AES (Prof. A.K. Bhateja)** (July, 2024 - September, 2024) :
 - Built an **end-to-end encrypted client-server messaging system** using **AES-CBC** with **PBKDF2 key derivation**, ensuring confidentiality, integrity, replay attack prevention (**via unique IVs**), and encrypted username privacy
 - Implemented **secure storage and administration features** with **SQLite-backed encrypted message logging**, master-password protected server controls, and **multi-client support**, providing a robust foundation for real-world secure communication

TECHNICAL SKILLS

- **Programming Languages:** C (Proficient), C++ (Proficient with STL), Python (Core), SQL
- **Software & Tools:** Git, MySQL, LINUX, Wireshark, Burp Suite, Android Debug Bridge, NMap, Jadx-Gui

SCHOLASTIC ACHIEVEMENTS

- Received **Outstanding Teaching Assistant Award** in COL100(Introduction to Computer Science), 2024-2025
- Qualified **GATE 2024 CS/IT**

POSITIONS OF RESPONSIBILITY

- **Teaching Assistant for the course** Introduction to Computer Science(COL100)-**Best TA Award** & Data Structures and Algorithms(COL106), **IIT Delhi** (Jul, 2024 - Present)



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IIT COURSE

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COURSES DONE

Advanced Data Structures, Computer Networks, Cryptography & Computer Sec., Introduction To Blockchains, Cryptocurrencies, And Smart Contracts, Resource Management In Computer Systems, Minor Project, Networks & System Security, Special Topics In Cyber Security