

HARSHIT KUMAR SHARMA

Computer Science and Engineering Student

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PROFESSIONAL SUMMARY

Computer Science undergraduate with hands-on experience in embedded systems, real-time operating systems, IoT and software development. Built custom kernels and low-level firmware for microcontrollers, integrated machine learning with sensor networks, and developed efficient, hardware-interfaced applications using C, C++, and Python. Skilled in debugging, optimizing performance, and delivering reliable solutions for both software and hardware platforms.

EDUCATION

Lovely Professional University, BTech in Computer Science and Engineering, Score 7.2 Aug 2023 – June 2027
PM SHRI Kendriya Vidyalaya, 12th Grade (PCM), Score: 92% Apr 2022 – Mar 2023
PM SHRI Kendriya Vidyalaya, 10th Grade, Score: 86% Apr 2020 – Mar 2021

INTERNSHIP

• **Project Engineering Intern - DIAT (DU), DRDO, Optical Communication and Bio photonics Lab** Pune, India
Underwater Wireless Optical Communication (UWOC) June 2025 – July 2025

- **UWOC System Development:** Built laser-based optical communication achieving more than 85% classification accuracy in turbid environments using 50K+ NTU-labeled sensor data.
- **Tkinter-based GUI:** Developed real-time GUI for live data visualization and turbidity prediction on Raspberry pi.
- **BER Optimization:** Reduced BER by 10% using dynamic threshold tuning and analog signal optimization.

• **Volunteer Teacher Assistant - Durga Saptashati Foundation (NGO)** Dwarka, New Delhi
Electronics & Programming Mentor June 2024 – July 2024

- **Mentorship:** Guided and taught 20+ students in basic electronics and programming.
- **Hands-on Projects:** Designed 5 practical electronics projects (LED circuits, etc.) to teach fundamentals.

PROJECTS

• **Low Cost Tamper detection in weighing Scale** Sep 2025 – Jan 2026
Embedded Systems, IoT, OTA Update, Machine Learning, Android App (APK File).

- Developed a **low-cost embedded tamper detection system** for digital weighing scales to prevent unauthorized manipulation.
- Integrated **HX711 load cell amplifier** for precise weight measurement and real-time data acquisition.
- Applied **unsupervised machine learning - based classification** to detect abnormal weight patterns indicating tampering.
- Enabled **IoT connectivity** for remote monitoring and tamper alerts.
- Implemented **OTA firmware updates** for remote maintenance and upgrades.
- Developed an **Android app (APK)** for real-time weight display and alert notifications.

• **Custom Heap Memory Manager in C** Apr 2025 – June 2025
System Programming, Memory Management.

- **Memory Allocation Library:** Developed a custom heap memory allocation library for user-space applications.
- **Fragmentation Handling:** Addressed internal/external fragmentation using smart block splitting and merging logic.
- **Leak Detection:** Implemented allocation tracking to detect memory leaks and dangling pointers.
- **Data Structures:** Used doubly linked lists to efficiently manage free and allocated memory blocks.
- Demonstrated efficient memory management using glue-based linked lists, balancing performance with low overhead.

SKILLS

• **Languages:** C, C++, Java, Embedded C, Python, Kotlin.
• **Tools/Tech:** Git, GitHub, Microcontrollers (Arduino/ Esp32/ STM32/ Raspberry Pi Pico), Raspberry Pi, Linux, IoT, Embedded Systems, Blender, Android Studio.
• **Soft Skills:** Teamwork, Adaptability, Attention to Detail, Resilience & Persistence.

CERTIFICATES

• **Machine Learning and Deep Learning - NPTEL:** [LINK](#) July 2025 – Oct 2025

ACHIEVEMENTS

• **GitHub Club Member:** Active contributor in university development community.
• **Winner-SAP Hackfest 2025 (Regional - level):** Built an IoT-based sustainable business monitoring system.