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EDUCATION

National Institute of Technology, Jalandhar
B.Tech in Electronics & Communication Engineering

2024–2028

EXPERIENCE

AI/LLM Agent Development – Startup

Present

- Working on AI-based automation systems and real-world integration
- Exposure to intelligent edge systems and deployment workflows
- **Relevance:** Aligns with AI-driven edge processing and smart SoC applications at NXP

Ethical Hacking Internship – CDAC Noida

June 2025 – July 2025

- Performed system-level security testing and vulnerability analysis
- Developed understanding of secure communication systems
- **Relevance:** Useful for secure SoC design and reliable embedded system architectures

Remote Sensing Internship – Indian Space Academy

July 2025 – Aug 2025

- Processed satellite sensor data and performed signal analysis using GEE
- Applied data-driven techniques for environmental monitoring
- **Relevance:** Experience with real-world sensor data aligns with NXP's sensing and IoT solutions

PROJECTS

UART Communication Controller (Verilog RTL)

- Designed UART IP using FSM-based transmitter and receiver
- Implemented configurable baud rate and verified via testbench
- Designed considering timing and synchronization constraints
- **Relevance:** Demonstrates RTL design and digital IP development used in SoC communication interfaces

Low-Power SRAM Read Architecture (FOSSEE, IIT Bombay)

- Designed 6T SRAM read path with precharge and sense amplifier
- Analyzed bit-line differential sensing and CMOS behavior
- Studied low-power design considerations at transistor level
- **Relevance:** Strong foundation in CMOS and memory design relevant to SoC and semiconductor IP development

Smart Inhaler System (IoT + Embedded + PCB)

- Developed end-to-end embedded system with sensor integration and GSM communication
- Designed complete PCB and working prototype for real-time monitoring
- Patent filed for system design and functionality
- **Relevance:** Demonstrates system-level integration, sensor interfacing, and embedded design for IoT SoCs

Traffic Signal Control System

- Built real-time control logic with priority override mechanism
- Implemented state-based embedded system architecture
- **Relevance:** Shows real-time decision systems relevant to automotive and smart mobility solutions

TECHNICAL SKILLS

Languages: C, Python, MySQL

HDL & Tools: Verilog, Cadence Virtuoso, eSim

Core: CMOS, VLSI, Digital Design, Embedded Systems

RESEARCH

- Studying electrophysiological signals in Capsicum annuum under nitrogen deficiency and drought stress
- Designed workflow for bio-signal acquisition and analysis

ACHIEVEMENTS

- Selected for FOSSEE Research Migration Project (IIT Bombay)
- Athlete – Completed half marathon, demonstrating endurance and discipline

LEADERSHIP & ACTIVITIES

- NCC Cadet – leadership and teamwork
- Active member in technical and student clubs at NIT Jalandhar