

SOURAV THAKUR

M.S. (Research) Student | VLSI Design

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PROFILE

M.S. (Research) student specializing in VLSI at the Indian Institute of Technology Mandi, working under the supervision of Dr. Bikram Paul. Research interests include computer architecture, RISC-V processor design, and hardware acceleration for post-quantum cryptography. Current work focuses on custom RISC-V instruction extensions for polynomial multiplication, with an emphasis on instruction-level optimization, modular arithmetic, and lightweight hardware–software co-design.

EDUCATION

M.S. (Research) — VLSI

Indian Institute of Technology Mandi (IIT Mandi) • SCEE
2025–Present | Research Supervisor: Dr. Bikram Paul

B.Tech. — Electronics and Communication Engineering

Himachal Pradesh Technical University, Himachal Pradesh, India
Graduated 2024 | CGPA: 7.8/10

RESEARCH

Custom RISC-V Instruction Extensions for Accelerating Polynomial Multiplication in Post-Quantum Cryptography

Investigates custom RISC-V instructions to improve polynomial-multiplication efficiency in lattice-based post-quantum cryptographic algorithms. Current work involves RTL implementation and custom instruction development, including exploration of modular arithmetic operations and integration with the Ibex RISC-V processor. The objective is to reduce execution cycles and computational overhead while maintaining a lightweight hardware implementation.

RESEARCH INTERESTS

- VLSI design and digital hardware architecture
- RISC-V processor architecture and custom instruction-set extensions
- Post-quantum cryptography and polynomial-multiplication acceleration
- Hardware–software co-design and modular arithmetic

TECHNICAL SKILLS

HDLs	Verilog, SystemVerilog
Processor architecture	RISC-V, Ibex
Hardware design	Xilinx Vivado
Programming	C, Python

PUBLICATIONS

No publications to date.