GAURAV KUMAR GUPTA

ACADEMIC PROFILE

Degree/Certificate	Institution	Percentage/CGPA	Year
B-Tech	Electrical Engineering IIT (BHU), Varanasi	8.23	2026

Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI	Sem VII	Sem VIII
8.21	8.54	8.70	8.49	6.79	8.44	-	-

BSEB (XII)	A.N. COLLEGE, PATNA	86.20	2021
CBSE (X)	KIDDY CONVENT HIGH SCHOOL, PATNA, BIHAR	93.60	2019

SKILLS

- **Languages:** C/C++, Verilog, SystemVerilog | **Tools:** Xilinx Vivado, TCAD, LTspice, STM32CubeIDE, Proteus, MATLAB, KiCad, Altium Designer
- **Area of Interest: Embedded Systems**, Digital Design & Verification, SoC Architecture, Problem Solving.

PROJECTS

Design and Simulation of a Synchronous SRAM with Verilog and LTspice

- Designed a **synchronous SRAM** with custom address decoder, control logic, and memory cell array architecture.
- Implemented RTL in Verilog and performed functional verification using ModelSim; simulations in LTspice.
- **Analyzed timing, stability, and power consumption** of SRAM bitcell and peripheral circuits through SPICE.
- Optimized design for speed and area, with configurable word size and depth for embedded system Github Link

Design and Verification of a 32-bit RISC-V Processor

- Designed and implemented a **32-bit RISC-V** processor supporting the **RV32I** instruction set.
- Developed key components: Instruction **Fetch, Decode, Execute, Memory, and Writeback** stages. Implemented datapath and control logic with Verilog HDL
- Verified processor operation by running sample RISC-V assembly programs (addition, branching, loops, etc.).
- Developed a modular **SystemVerilog testbench** (UVM-lite style) to verify ALU, Register File, Control Unit, and Memory Interface functionality.
- Implemented directed and **constrained-random testcases**, **functional coverage**, and **assertions** to ensure instruction-level correctness Github Link

Embedded Control of Reconfigurable EV Power Converter

** Under the supervision of Dr. Rajeev Kumar Singh **

- Designed a 1.5 kW EV power converter using **PFC boost and LLC resonant** half-bridge topology with CC-CV charging.
- Developed dual-loop PFC control and LLC frequency modulation on STM32 MCU for both modes.
- Integrated PWM, ADC, and UART peripherals for real-time control, sensing, and data logging.
- Converter operates as both a charger and a VSI to drive a 1000 W BLDC motor using six-step commutation.

CERTIFIED COURSES

- Completed Certified Training on **Electrical Characterization** of Materials and Devices by **Tektronix**, covering accurate semiconductor parameter measurements with error analysis and resolution.

India Semiconductor Workforce Development Programme (ISWDP) – Certified Course

June '25 - Aug '25

- Completed certification program focused on semiconductor design and verification workflows.
- Gained hands-on exposure to EDA tools such as TCAD (Technology Computer-Aided Design) and RTL design.
- Studied semiconductor device physics, process technology, and fabrication flow relevant to VLSI industry practices.
- Certified under the Government of India's semiconductor skilling initiative, ensuring industry-aligned training.

HONOURS AND ACHIEVEMENTS

- Achieved **6636** rank in JEE Advanced 2022, among **0.15 Million** short-listed candidates for the Examination.
- Qualified as a **RELIANCE Foundation Undergraduate Scholar** among 5000 students shortlisted all over India.

EXTRA-CURRICULAR ACTIVITIES

- Participated in the Consultium, Business Club Event, **IIT BHU**.

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