RITAM MITRA

www.linkedin.com/in/ritammitra | ritammitra2003@gmail.com | +917384949090

Summary

Final year ECE student with a strong foundation in digital electronics and Verilog HDL, seeking an entry-level VLSI or embedded systems role to apply theoretical knowledge, gain hands-on industry experience, and grow in the semiconductor domain.

Education

Year	Degree/Exam	Institute	CGPA/Marks
2022–26	B.Tech (Pursuing)	Institute of Engineering and Management, Kolkata	9.1 / 10
2022	Higher Secondary (12^{th})	Ramakrishna Mission Vidyabhavan, Midnapore	97.33%
2020	Secondary	Ramakrishna Mission Vidyabhavan, Midnapore	93.7%

Internship

Student Researcher (May 2024 – July 2024) Kolkata
Innovation and Entrepreneurship Development Centre Link

- Project development of multi-stage amplifier-connected VGA circuits using transconductance and trans-impedance techniques for high-gain, low-noise analog front-end design.
- Practical experience with Verilog HDL and Cadence tools, focusing on schematic-level circuit design and simulation.
- Worked on amplifier architecture optimization for noise performance, gain enhancement, and stage-level integration.

Industrial Trainee and Winter Intern (Jan 2024 – Feb 2024) Kolkata
Jadavpur University Link

- Developed expertise in semiconductor fabrication processes including wafer preparation, oxidation, photolithography, and etching to understand VLSI chip production flow.
- Hands-on training in IC design principles and basic FPGA implementation using Verilog HDL.

Projects

- **Ahuja-Compensated Three-Stage High-Gain Folded-Cascode Voltage-to-Current Converter (Final Year Project)**
  Cadence Virtuoso, 90nm CMOS, Analog IC Design – Designed and simulated a three-stage CMOS V-I converter using Folded Cascode architecture with Ahuja compensation for improved gain and stability. Achieved 82 dB DC gain, 66.2° phase margin, 51.8 MHz UGB, and 92.8 µW power consumption at 1V supply.
- **IoT-Enabled Real-Time Water Quality Monitoring System using Machine Learning**
  IoT Sensors, Microcontroller, Machine Learning – Developed a real-time water quality monitoring system using IoT-based sensors. Implemented ML algorithms for water quality analysis and prediction, focusing on data acquisition, remote monitoring, and intelligent decision support.
- **IoT-Integrated Smart Cold Storage Monitoring System with SaaS-Based Real-Time Analytics**
  ESP32, IoT Sensors (DHT22, MQ4, MQ135), Cloud Platform, Machine Learning – Developed an

IoT-based cold storage monitoring system for real-time tracking of temperature, humidity, methane, and air quality. Implemented cloud-based analytics and ML-driven insights for remote monitoring, spoilage prediction, and energy-efficient storage management.

- **Solar Tracker using Arduino**
  Arduino, LDR, Servo – Built a solar panel system that auto-aligns with sunlight. Handled circuit design and coding.
- **Temperature-Controlled DC Fan**
  Arduino, LM35 – Auto fan speed control based on temperature. Implemented sensor-based PWM logic.
- **Solar Automatic Street Light**
  Microcontroller, LDR – Developed a light system that switches on/off automatically with sunlight. Focused on circuit and logic design.
- **Touch-Sensor Based Smart Appliance Control**
  Arduino, Touch Sensor, Relay – Enabled appliance control via touch. Developed switching control logic.

CERTIFICATIONS

- **Certified Intern** – Successfully completed Internship as Student Researcher at IEDC, IEM (May–July 2024) Link
- Selected for **Winter Internship** at Jadavpur University in VLSI and Semiconductor Fabrication (2024) Link
- **Semiconductor Fabrication 101 Certified** – Successfully completed Intel-sponsored program by **Purdue University and University of Texas at Austin** (2024) Link

RESEARCH PUBLICATIONS

- **High-Accuracy Water Quality Detection Using IoT-Integrated Ensemble Machine Learning**
  Published in *IEEE IEMENTech 2026 – 9th International Conference on Electronics, Materials Engineering and Nano-Technology*Link
- **Ahuja-Compensated Three-Stage High-Gain Folded-Cascode Voltage-to-Current Converter (Final Year Project)**
  Published in *IEEE IEMENTech 2026 – 9th International Conference on Electronics, Materials Engineering and Nano-Technology*Link
- **IoT-Integrated Smart Cold Storage Monitoring System with SaaS-Based Real-Time Analytics for Precision Agriculture**
  Published in *IEEE IEMENTech 2026 – 9th International Conference on Electronics, Materials Engineering and Nano-Technology*Link

Skills

- **Programming Languages:** C, Verilog
- **Software:** MATLAB, MS Office, Cadence, LTspice
- **Platforms:** Windows, Linux
- **Subjects:** Digital Electronics, Control Systems, Analog Electronics, Network Theory

Awards and Achievements

- **State Rank 13** in Higher Secondary Examination (WBCHSE) – Scored 97% (2022)

Extra Curricular Activities

- Authored a unique book titled *"π TO A TRILLION DIGITS: BEYOND 3.14"*
- **Wall Artist** – Created several large-scale wall paintings
- **Artist** – Passionate about drawing and sketching, with a portfolio of pencil art, illustrations, and concept sketches

Declaration

I hereby solemnly declare that all the above statements furnished by me are true and correct to the best of my knowledge.

RITAM MITRA
Kolkata, West Bengal