

# SOURASISH MITRA

B. Tech | Kolkata, IN | [smitra0916.github.com](https://github.com/smitra0916)

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## Education

- Jalpaiguri Government Engineering College, West Bengal** Expected 2025  
*Bachelor of Technology in Electronics and Communication Engineering* CGPA: 8.87
- APC Ray Polytechnic Jadavpur, Kolkata** 2022  
*Diploma in Engineering* CGPA: 8.9

## Technical Skills

**Languages:** C / C++, Python

**HDL:** Verilog, System Verilog

**EDA Tools:** Cadence Virtuoso, Xilinx Vivado, Xilinx ISE, KiCad, NgSpice, eSim

**Libraries:** TensorFlow, Numpy, Pandas, Scikit-learn

## Experience

- Celebal Technologies** June 2024 - July 2024  
*Summer Intern* Remote
  - Implemented and deployed a Python-based anomaly detection system utilizing unsupervised learning techniques to analyze network traffic data for identification of unusual patterns and anomalies indicative of potential security breaches or system malfunctions.
  - Optimized the performance by tuning the latent dimension in auto encoder. Achieved maximum accuracy while minimizing false positives.
- University of Calcutta** May 2024 - June 2024  
*Research Intern* Kolkata, India
  - Designed and implemented Pulse Width Modulation (PWM) control system using Verilog on Xilinx FPGA to regulate MOSFETs driving a pump for a cold collision experiment at the Chemistry Lab.
  - Ensured efficient signal transmission through impedance matching and verified PWM functionality using a DSO.
  - Achieved precise control of the pump's operation within the experiment's critical temperature requirements, ensuring optimal cold collision environment

## Personal Projects

- 32-bit pipelined MIPS processor in Verilog** Ongoing  
*Technology Used: Verilog, Xilinx Vivado, Xilinx FPGA*
  - Designed and implemented a 32-bit MIPS microprocessor with a 5-stage pipeline architecture using Verilog, achieving efficient RISC instruction set execution.
  - Simulated and verified the processor functionality in Xilinx Vivado and successfully implemented it on a Xilinx FPGA board, demonstrating high-performance operation and reliability.
- SR Flip Flop to JK Flip Flop using Mixed Signal Design** May 2024  
*Technology Used: KiCad, NgSpice, eSim, SKY 130 PDK, Verilog*
  - Conversion of F/F was implemented using SKY 130. The SR Flip Flop was made of analog block using Kicad and Ngspice and the gates which provide input to the SR Flip Flop is made of digital block using Verilog.
  - Simulated the whole design was using open source software eSim and SKY 130
- Communication Protocols in Verilog** April, 2024  
*Technology Used: Verilog/SystemVerilog, Xilinx ISE, Spartan 3E FPGA*
  - Designed the transmitter and receiver units of inter-system communication protocols like UART, and designed the interface of 12C communication protocol for EEPROM in Verilog.
  - Simulated and tested the performance of the design in Xilinx ISE.

## Position of Responsibility

- Technical Member Core Team CFI** (Centre for Innovation), JGEC. Aug 2023 - Present
  - Led and mentored young team members, developing engaging workshops to ignite their passion for technology and problem-solving in the IoT field.

## Achievements

- Hackathon Round 2 Finalist** at Department of Health and Family Welfare, Govt. of WB, Hack-O-Med 2023.
- Participated and Collaborated** in Open Source Event JGEC Winter of Code - 2023.
- Achieved Highest** SGPA 9.71 in 5th Semester of BTech.