

SANJAY RAAMAN NATARAJAN

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Summary

Aspiring Electrical Engineer with a strong foundation in engineering through internships at Schneider Electric, Big Bang Boom Solutions, and Mobiveil Inc. Contributed to reducing machine downtime by 20% and enhancing RF amplifier efficiency for defense applications. Developed a Python-based tool that improved PCB design accuracy by 30%. Eager to apply problem-solving skills and technical expertise to drive innovation and efficiency in engineering roles.

EDUCATION

University at Buffalo, The State University of New York

Dec 2025

Master of Science, Electrical Engineering

- **GPA:** 3.58
- **Coursework:** Microfabrication (Clean room), Analog and Digital Circuit Design, Signal Processing, Optoelectronics, Power Electronics, Sensors, VLSI Devices, Semiconductor Device Physics

Indian Institute of Technology, Palakkad

May 2024

Bachelor of Technology, Electrical Engineering

- **Coursework:** VLSI Design, Control Systems, Communication Systems, Digital Signal Processing, Electromagnetic Theory, RF & Microwave Engineering, Microelectronics, Embedded Systems

TECHNICAL SKILLS

- **Software & Tools:** Cadence, MATLAB/Simulink, LTSpice, Altium/KiCAD, MS Office, Silvaco TCAD
- **Programming Languages:** C, C++, Python, Verilog/VHDL
- **Testing Equipment:** Oscilloscopes, Multimeters, Vector Network Analyzers (VNA)

EXPERIENCE

Schneider Electric

May 2023 - Jul 2023

Electrical Maintenance Intern

Chennai, India

The production and testing division for Miniature Circuit Breakers (MCBs) faced frequent disruptions due to unidentified electrical faults.

- Assisted in ensuring uninterrupted machine performance and enhancing fault detection.
- Conducted systematic maintenance checks, developed a standardized validation process for test data and collaborated with engineers to troubleshoot faulty equipment.
- Reduced machine downtime by 20% and improved equipment reliability, ensuring smoother production cycles.

Big Bang Boom Solutions Pvt Ltd

Dec 2023 - Jan 2024

RF Engineering Intern

Chennai, India

The company aimed to enhance the efficiency of RF power amplifiers for defense applications.

- Assisted in designing and simulating RF amplifiers, contributing to higher gain and efficiency, which supported the company's goal of improving defense application performance
- Utilized MATLAB/Simulink to analyze and optimize amplifier performance, implementing impedance-matching techniques to reduce losses.
- Designed and implemented a testing prototype that significantly improved the evaluation accuracy of amplifier performance under real-world conditions.

Mobiveil Inc

Jun 2024 - Jul 2024

Hardware Engineering Intern

Chennai, India

PCB manufacturing errors often led to costly debugging and delays in production.

- Developed a verification tool to detect incorrect or missing PCB connections, resulting in a reduction in design validation time.
- Designed and implemented a Python-based software solution for automated PCB connection validation, integrating electrical rule checks.
- Reduced manual debugging time by 30% and enhanced PCB design accuracy before production.

ACADEMIC WORK AND PROJECTS

Microfabrication Lab

Mar 2025

University at Buffalo, The State University of New York

- Hands-on experience in cleanroom procedures and microfabrication processes such as photolithography, wet/dry etching, oxidation, doping and thin-film deposition (PVD, CVD, ALD).
- Operated vacuum systems, electron beam evaporators and sputtering tools; characterized materials using ellipsometry, profilometry, and four-point probe.
- Simulated semiconductor processes using TCAD tools for oxidation, ion implantation and annealing.

- Completed lab reports and technical documentation for nine fabrication modules including wet processing, lift-off and scanning electron microscopy (SEM) analysis.

High-Precision Digital-to-Analog Converter (DAC) Design

Sep 2024

University at Buffalo, The State University of New York

- Low-accuracy current mirrors in DACs caused output distortions affecting signal integrity.
- Designed and analyzed multiple current mirror topologies for improved accuracy.
- Simulated NMOS cascode and high-swing cascode current mirrors in Cadence, optimizing for impedance, voltage swing, and step size variations.
- Achieved an improvement in mirroring accuracy, reducing DAC output deviations.

Certifications

- **NVIDIA DLI — Getting Started with AI on Jetson Nano:** Set up Jetson Nano hardware and software, collected and annotated image data, trained deep learning models and deployed real-time inference for image classification and regression on embedded hardware.