Akanksha Mukesh Patil

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Summary

Electrical Engineering graduate specialized in Digital & Mixed-Signal VLSI, RTL Design, and Circuit Verification, with expertise in Verilog, FPGA, and power optimization. Hands-on experience in Cadence Virtuoso, and SI/PI analysis, with a strong foundation in semiconductor design and IC validation, seeking a full-time role in VLSI to apply technical skills and problem-solving abilities.

Education

MS in Electrical and Computer Engineering, San Diego State University, CA — Aug 2023 - May 2025
Coursework: VLSI Circuit Design, Analog IC Design, Signal & Power Integrity, Power Electronics. — GPA: 3.46/4
B.E Electronics and Telecommunications Engineering,University of Pune, INDIA — Aug 2019 – May 2023
Coursework: Power Devices and Circuit, Digital Communication, Electrical and Electronics Circuits. — GPA: 3.46/4

Technical Skills

Design & Simulation Tools: Cadence Virtuoso, Sigrity (PowerSI), Altium, MATLAB, LTSpice, Keysight ADS, Ansys HFSS
Hardware Platforms: ESP32, Arduino (ATmega2560, ATmega328P), FPGA (Verilog)
Languages: Verilog, Python, C++
Technical Knowledge: I²C, CAN, SPI, BMS, Analog & Digital Circuit Design,solid-state devices, Converters (AC/DC), UVM
Familiarity: Static Timing Analysis (STA) and SDF constraint development for test modes; exposure to ATPG/MBIST/JTAG through DFT coursework and simulation labs

Experience

Field Application Engineer Intern, Renesas Electronics America – Chicago, IL — May 2024 – Aug 2024
Tools & Technologies: GreenPAK | ZMID4200 Inductive Position Sensor

- Reduced current consumption of ZMID4200 inductive position sensors by designing wake/sleep timing mechanisms using GreenPAK
- Conducted extensive testing and validation to optimize sensor performance under dynamic operating conditions.
- Engaged with clients to troubleshoot technical issues, provide customized solutions, and creating block diagrams for system design.

Teaching Assistant, SDSU – San Diego, CA — Jan 2024 – Present
Tools & Technologies: Oscilloscopes | Multimeter | Power Supply Unit

- Instructing and managing labs on Electricity and Magnetism, covering core concepts like electric/magnetic fields, circuit elements.

Electrical Engineering Intern, SDSU ZIP Launchpad – San Diego,CA — Nov 2023 – May 2024
Tools & Technologies: MATLAB | Cadence Virtuoso | Power Management ICs

- Designed and simulated virtual power devices to interface with energy equipment for seamless energy flow management.
- Lead the development of a power device prototype, including research, documentation, PCB design, and code development.

Electrical & Transmission Head,Solar Electric Vehicle [Team Hyperion]-India — Jul 2021 - Aug 2023
Tools & Technologies: Li-ion/LiPo Batteries | Motor Controllers | DAC/ADC | RF Modules

- Designed battery storage, motor controllers, and power circuits, reducing component failure rates by 20%.
- Developed buck-boost and AC-DC converters and power-efficient circuits for ECU, achieving 2nd place in SUVC and 4th in ESVC.
- Developed a sensor network integrating ultrasonic, IR sensors, and RF circuits for an autonomous driving project.

Quality Assurance Intern, Electronet Equipments PVT LTD – India — Jan 2022 - Feb 2022
Tools & Technologies: VLSI Testing | SOC IC | Power Flow Analysis | Verification Tools

- Accelerated SOC ICs verification by 20%, identifying and resolving issues quickly.
- Verified and validated energy-efficient power supply units, reducing energy consumption by 20%.
- Improved power distribution efficiency by 10% through power flow analysis, earning company recognition.

Projects

Reducing Power and Ground Voltage Noise Using Cadence PowerSI — Oct 2024 – Dec 2024
Tools & Technologies: Cadence PowerSI | Z-parameter Analysis | Decoupling Capacitors

- Simulated a 5-layer PCB to identify voltage hotspots and reduce power/ground plane impedance using decoupling capacitors.
- Designed and implemented decoupling capacitors, reducing power/ground plane impedance by 30%.
- Achieved significant reduction in peak voltage fluctuations, enhancing power delivery to sensitive components.

Reconfigurable Logic for IoT Devices — Aug 2024 – Nov 2024
Tools & Technologies: Verilog/SystemVerilog | Vivado

- Designed reconfigurable logic block with Low-Power(50 MHz) and High-Performance(200 MHz) modes using custom PLL and FSM.
- Simulated dynamic clock scaling and mode transitions in Vivado, achieving 30% power savings in Low-Power Mode.

Publications & Certifications

- **Human Following Luggage Carrying Robot** - 10.48175/IJARSCT-10923 — Jan 2023
- Dassault SolidWorks- Electrical Associate Certificate (Issued- Feb 2022, Credential ID- C-PH5ZLEUX9Q)