**Rahul Verma**  
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**EDUCATION**  
**MS in Electrical and Computer Engineering**; GPA: 3.77 / 4  
University of Houston, Houston, TX, USA January 2023 - December 2024 (expected)

**B. Tech in Electrical and Electronics Engineering**; CGPA: 8.49 / 10.0  
Vardhaman College of Engineering, JNTUH, Hyderabad, TS, INDIA June 2017 - July 2021

**SUMMARY**  
Motivated electrical engineer with extensive hands-on experience in power electronics control, system integration, and Python programming. Proficient in schematic design, PCB layout, and testing methodologies using advanced lab tools. Seeking an internship in Megapack integration and validation to apply my skills in a real-world setting.

**WORK EXPERIENCE**

**Research Assistant**  
Advanced Imaging and Sensing Lab, University of Houston, Houston, TX March 2024 - Present

* Engineered and optimized environmental monitoring sensors utilizing Arduino, achieving a 60% accuracy rate in ion sensitivity testing.
* Designed, implemented, and validated analog and digital circuits for CO2 detection using Raspberry Pi, enhancing system reliability by 30%.
* Developed PCB designs using Onshape and performed real-time troubleshooting and analysis using MATLAB and Python.
* Conducted schematic design and component data-sheet analysis, coordinating the layout of multilayer PCBs for various projects.
* Engaged in prototype bring-up, debug, functional verification, and electrical characterization using advanced lab tools such as oscilloscopes and network analyzers.
* Analyzed factory-scale data to adjust signal parameters, ensuring manufacturing test plans provide adequate coverage for high-quality assembly.

**Assistant System Engineer**  
TATA Consultancy Services, Hyderabad, India August 2021 - December 2022

* Optimized Verilog design flow module, reducing simulation time and improving efficiency.
* Collaborated on design review processes, reducing development cycles by 15%.
* Provided technical support for system integration, troubleshooting, and deployment of software and hardware solutions.
* Developed detailed documentation and conducted training sessions, enhancing team productivity.

**ACADEMIC PROJECTS**

**FPGA-Based Arithmetic Brain Game on Intel Cyclone 5 FPGA using Verilog**

* Implemented Verilog for secure number input and load functionality, ensuring data integrity and reliability.
* Verified designs using Quartus Prime and ModelSim, achieving a 30% improvement in system accuracy.

**Design and Verification of I2C Communication Protocol using System Verilog**

* Designed and verified Verilog modules for robust I2C communication, meeting stringent specifications and functional requirements.
* Employed Mentor Graphics tools for functional coverage analysis and assertion checks, ensuring high reliability.

**Raspberry Pi-Based Monitoring & Leakage Detection Engineering Robot using Python**

* Integrated MQ-2 Gas Sensor and camera on Raspberry Pi for real-time industrial hazard detection and early warning.
* Enhanced Wi-Fi connectivity by 20%, facilitating seamless data transmission and high-quality streaming features.

**VLSI Design of 180nm EEPL Multiplexer and D Flip Flop using Cadence Virtuoso**

* Designed high-frequency EEPL and LEAP multiplexers to form a robust D flip-flop, achieving clock speeds of 1.5 GHz.
* Conducted Cadence Virtuoso simulations, improving design accuracy by 15% and reducing costs.

**RELEVANT SKILLS**

* **Programming Languages:** C, C++, Python (scripting), Verilog, System Verilog, Assembly language, MATLAB
* **Protocols:** UART, I2C, SPI, USB
* **EAD Tools:** Cadence Virtuoso, Cadence Allegro, Quartus Prime, Mentor Graphics Tool, ModelSim, Onshape, Raspberry Pi, Arduino
* **Technologies:** Power Electronics, CMOS transistor, Intel Cyclone 5 FPGA, Windows, Linux, Eclipse IDE, MS Office
* **Lab Skills:** Oscilloscopes, Network Analyzers, Logic Analyzers, Electronic Loads
* **Data Analysis:** Statistical data analysis and visualization using Python and MATLAB