

# MOKSHA VIGNAN NIMMAGADDA

## Information Technology Management Graduate Student

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### SUMMARY

Information Technology Management graduate student with a foundation in electrical engineering and applied research across VLSI, IOT, and communication systems. Demonstrated ability to analyze complex technical problems and present findings clearly. Interested in academic, research, or technology-focused institutional roles.

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### EDUCATION

#### Cumberland University 2026-2027

ITM Project Management

#### California State University 2024-2025

Masters in Electrical Engineering

#### Bachelor's in Electrical Engineering

VIT-AP University (2020-2024) GPA: 3.00

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### TECHNICAL SKILLS

**Programming:** C, C++.

**Operating Systems:** Linux. Scripting

**Languages:** Python, Perl, TCL.

**HDL and Methodology:** Verilog, System Verilog and UVM

**Tools:** Synopsys Design Compiler (VCS), Xilinx Vivado (NEXYS4 DDR), Quartus Prime (DE10 Lite), Questasim, SimVision, JasperGold, Jupyter Notebook, MATLAB.

**Microsoft Tools:** Visual Studio, Excel.

**Communication Protocols:** I2C, SPI, PCI, UART, AMBA.

**Design and Verification:** Finite State Machine (FSM) design, Digital Logic Design, Static Timing Analysis (STA), CPU Architecture, Design Rule Check, Logic Synthesis, Clock Domain Crossing.

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### WORK EXPERIENCE

#### Digital Design Engineer Intern

Cloud Software Solutions, Bengaluru, India

**JUN 2023 - DEC 2023**

- Assisted the digital design team in validating and enhancing pre-developed Verilog modules such as ADC interfaces, simple filters, and PWM generators, ensuring functional correctness through simulation in Synopsys VCS.
- Wrote directed testbenches in Verilog to verify functional scenarios and corner cases and supported debugging of simulation mismatches alongside senior engineers.
- Created Python-based automation scripts to extract functional coverage and cross-check register specifications, reducing manual review effort and improving consistency.
- Contributed to timing and power analysis reviews of existing modules, applying clock gating and reset domain handling concepts under guidance, while participating in lint and design rule checks to ensure reliability and compliance.

## PROJECTS

### **Security-Based Implementation of Obfuscated 32-Bit ALU Architecture**

- Architected the implementation of logic obfuscation in Verilog HDL to enhance security while maintaining full functionality in a 32-bit ALU design.
- Utilized the Vedic multiplication algorithm to minimize power consumption and design complexity while developing an optimized architecture for Binary-Coded Decimal (BCD) addition to enhance computational efficiency.

### **RTL Design and Verification of a 4-Port Switch/Router**

- Co-implemented a parameterized 4-port switching datapath with per-port FIFOs and store-and-forward, coordinating pipeline adjustments based on STA checks.
- Built a UVM-style environment with constrained-random traffic, reporting coverage metrics and failures to speed debug cycles.
- Led verification efforts by integrating SVA assertions and Python-based log analysis to ensure consistent regression results.

### **PCIe Transaction Layer Endpoint**

- Contributed to the design of a PCIe Endpoint handling Memory Read/ Write requests, BAR0 address decoding, credit counters, and up to eight outstanding reads with proper completions.
- Implemented BAR0 decode logic, outstanding read tracking, and credit counter updates in Verilog HDL, and added targeted assertions to support verification.

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## ACADEMIC PROJECTS

### **Smart Drip irrigation using IoT**

- The main product which is used in this project is Arduino and the objective of the project is to water the plants using drip irrigation until the certain limit by checking the humidity, temperature & values in the mobile itself.

### **Automatic Vehicle Speed Control with Accident prevention**

- This proposed work has an aim to control the speed of any vehicles automatically. Our work provides a way to control the speed without harming others. The driver need not control the speed during driving and the controls are done automatically by the use of the proposed embedded system.

### **Insect detector & agriculture-based project**

- The project is used if any insect or bug enters the range of the detector; it will pass a message to mobile by using a solar panel as backup power, we can water the plants. So that maximum power will be consumed through it rather than by the battery and by drip irrigation, the project gets more effective. The best about the project is the solar panel rotates according to the position of the sun.

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## CERTIFICATIONS

- **RTL-to-GDSII Flow v7.0**—Cadence.
- **Jasper Formal Fundamentals v2403**—Cadence.
- **SystemVerilog Assertions v5.1**—Cadence.