Vedant Vishwakarma

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Education

Bachelor of Technology in Electronics and Communication Engineering **2021-2025**
Vellore Institute of Technology, Vellore, India CGPA: **8.97 / 10**

Higher Secondary Certificate (HSC) **2020-2021**
Indian School DaresSalaam, Dar es Salaam, Tanzania Percentage: **90.2%**

Secondary School Certificate (SSC) **2018-2019**
Indian School DaresSalaam, Dar es Salaam, Tanzania Percentage: **95.2%**

Experience

- **SSPL DRDO** *Nov 2023*
  Internship Trainee New Delhi, India
  - **Implemented** C++ image processing algorithms, enhancing face and edge detection efficiency across multiple test scenarios.
  - **Strengthened** debugging skills, independently resolving issues faster in verification environments.
- **Maven Silicon** *June - July 2024*
  Project Intern Remote
  - **Designed** RISC-V ISA RV32I RTL, ensuring high functional accuracy in a multi-module embedded system under tight deadlines.
  - **Utilized** UVM testbench, streamlining verification processes, enhancing test coverage, and accelerating debugging for complex designs.

Projects

- **MIMO Patch Antenna Design** *2023*
  Microwave Studio Suite
  - **Designed** a 4-element MIMO patch antenna with optimized $\lambda/4$ spacing for minimal coupling.
  - **Achieved** gains of 6.1 and 6.8 dBi with effective impedance matching and low return loss.
  - **Simulated** radiation patterns and S-parameters, confirming improved signal integrity.
- **RISC-V RV32I Processor Design** *2024*
  Verilog, UVM, Digital Design
  - **Implemented** a 5-stage pipelined RV32I processor core in Verilog.
  - **Verified** design using UVM testbench to ensure functional correctness.
  - **Focused** on timing optimization and stable execution of ISA-compliant instructions.
- **CAN-Based Accident Avoidance System** *2024*
  Arduino, MCP2515
  - **Designed** a sensor-based collision avoidance prototype using ultrasonic sensors and CAN protocol.
  - **Integrated** servo-controlled braking with real-time distance feedback and status display.
- **Deep Learning for Channel Estimation in UV MIMO Systems** *2025*
  Python, TensorFlow, MATLAB
  - **Trained** DL models to improve channel estimation in ultraviolet MIMO communication.
  - **Compared** performance with traditional estimation under noise and signal distortion.
  - **Validated** improvements through reconstruction metrics and error rate reduction.

Skills

Programming: Embedded C, C, Python, Verilog
Tools & Platforms: STM32CubeIDE, Keil uVision, Proteus, LTspice, Vivado, Cadence Virtuoso, Git
Domain Knowledge: Microcontrollers, GPIOs, Embedded Protocols, Digital Electronics, Analog IC Design

Certifications

Certification	Institution & Date
Hands-on Analog and Digital IC Design using Cadence Tools	*VIT Vellore, Sep 2024*
RISC-V ISA RV32I RTL Design	*Maven Silicon, Jun - Jul 2024*
VSD - Static Timing Analysis I	*Udemy, Nov 2024*
VLSI Design	*Internshala Trainings, Dec 2024*