SOURABH TYAGI

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EDUCATION

- **Vellore Institute of Technology**.   **Amaravati-AP, India**
- Pursuing B.Tech in ECE with specialization in VLSI;   CGPA: 8.12   June 2022 - June 2026

WORK EXPERIENCE

Summer Intern - CEPDSM at MANIT, Bhopal   June 2024 – July 2024

- Designed and developed a 3 DOF Robotic Manipulator capable of performing pick-and-place tasks with voice and computer vision control, along with advanced trajectory planning.
- Programming Languages: Python
- Tools & Software: MATLAB, ROS, Autodesk

Treasurer, IEEE MTT   Sep 2023 – Present.

- VIT-AP University.
- Providing leadership and vision for the organization.
- Developing and implementing strategic plans to achieve organizational goals.

Student Coordinator of VTAPP

- VIT-AP University
- Conducted events like "JUMANJI: Survivor of the Fittest," "Megatron," and "COSMOX" during the tech fest.

SKILLS SUMMARY

Technical Skills

- **Programming Languages**: Python, Java, C
- **Object-Oriented Programming (OOP)**: Proficient in OOP principles and methodologies.
- **Data Structures and Algorithms (DSA)**: Strong understanding of data structures and algorithms.
- **Cloud Computing:** Knowledge of AWS Fundamentals (IaaS, PaaS, SaaS),infrastructure,storage, & networking.
- HTML5

VLSI Design

- HDL Languages: Verilog, VHDL, System Verilog.
- Verification Methodologies: UVM (Universal Verification Methodology).
- Physical Design: Experience in RTL to GDSII flow, floorplanning, placement & routing, clock tree synthesis (CTS),timing closure, and DRC/LVS verification.
- EDA Tools: Cadence Virtuoso, Xilinx Vivado, LTspice, Multisim, EDA Playground.
- FPGA Development: Experience with Zynq-7000 and Vivado HLS for high-level synthesis.

Platforms: PyCharm, Visual Studio Code, Eclipse, IntelliJ IDEA.

Soft Skills: Rapport Building, Teamwork, Communication, Problem-Solving.

PROJECTS

AI-Based Blind Stick with Image Detection

- Developed a smart stick for visually impaired individuals to detect object distance and recognize objects using AI, enhancing mobility and safety.
- Integrated sensors to detect the proximity of nearby objects and generate alarm sounds to alert the user.
- Implemented image recognition technology to identify objects and provide voice feedback, allowing users to know the names of objects in their vicinity.
- Designed the system using Python, OpenCV, etc, ensuring real-time object detection and distance calculation.
- Tools & Technologies: Python, OpenCV, TensorFlow, Raspberry Pi.

Design and Implementation of Combinational Circuits using Cadence Virtuoso: Links

- Basic Logic Gates: Designed Inverter, OR, AND, NAND, NOR, XOR, X-NOR, Buffer Gates, using 90 nm and 45 nm Technology on Cadence Virtuoso tools.
- Arithmetic Circuits:Designed Half Adder,Full Adder, Half Subtractor, Full Subtractor using 90 nm Technology.
- Designed Multiplexers, Demultiplexers, Encoders, and Decoders using Cadence Virtuoso.
- Gained hands-on experience in schematic capture, layout design, and circuit simulation.
- DRC: Verified and corrected layout designs to meet 90 nm foundry rules, ensuring manufacturability.
- LVS: Ensured accurate layout representation by matching layout with schematic,resolving discrepancies.

Design of a 6T SRAM Cell using Cadence Virtuoso   Links

- Designed a 6-Transistor (6T) Static Random Access Memory (SRAM) cell using 90nm technology in Cadence Virtuoso.
- Simulated and optimized read/write operations to improve key performance metrics, such as power consumption and stability.
- Performed layout design, Design Rule Check (DRC), and Layout Versus Schematic (LVS) to ensure design accuracy and fabrication readiness.
- Analyzedcriticalperformanceparameters,includingStaticNoiseMargin (SNM),accesstime,and power dissipation.

ACADEMIC COURSES

- Java with Data Structures and Algorithms (DSA).
- Semiconductor Devices and Circuits
- Microprocessor and Microcontroller
- Analog Devices and Circuits
- NPTEL: Physical Design (RTL to GDS), Static Timing Analysis, CMOS Digital VLSI Design.

CERTIFICATIONS   Links

- Summer Intern at MANIT, Bhopal.
- VLSI International Workshop Programming in JAVA.
- MATLAB Onramp.
- VLSI for Beginners.
- Space Science and Technology Awareness Training.