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Areas of Interest

Digital Circuit Design
Physical Design
Hardware Security
PCB Design

Technical Skills

VLSI Design

- Verilog | Physical Design
- Xshem | Magic | netgen | yosys
- OpenLANE | Cadence I F4PGA

PCB Design

- Altium | Eagle | KiCad
- Footprint Design | DFM analysis

Embedded Systems

- Atmel Studio | STM32 Cube IDE
- PX4 | Ardupilot
- RISC-V ISA

Coursework

Graduate Level

- Digital System Design Automation
- Advanced VLSI Design
- Computer Architecture
- MOS VLSI Design

Under Graduate Lv. (Extra Credit)

- Analog & RF VLSI
- CMOS Mixed Signal Design
- Semiconductor Process Tech.

Certifications

Cadence RTL-to-GDSII Flow

Yatharth Agarwal

MS in Electrical & Computer Engineering

An inquisitive engineer with a passion for developing and innovating solutions in the fields of VLSI, PCB Design, and Robotics. Excellent communication and collaborative skills with an eager desire to discover the diverse opportunities the industry has to offer.

Education Qualifications

MS in Electrical & Computer Engineering
Purdue University

BTech in Electronics & Communication Eng. | CGPA 8.94
Manipal Institute of Technology | 2023

Work Experience

Graduate Assistant | Embedded System Laboratory *October 2023 -*

- Designing a Secure Coprocessor for device Authentication, Firmware verification, and runtime monitoring of Cyber-Physical Systems.

Hardware Engineering Intern | Cisco *January 2023 - June 2023*

- Understood the design architecture and performed DFM analysis for PCBs used in Cisco access space routers.
- Worked on the Agile Product development methodology and proposed Value engineering ideas for reducing the BOM cost.

Technical Head | PROJECT MANAS *May 2021 - July 2022*

- Designed End-to-End detailed Technical Architecture for the autonomous drone that took part in the Student Unmanned Aerial Systems (SUAS) 2022 competition held in Maryland, US.
- Led and guided a team of 50+ undergraduates for the development of the entire drone system, including both hardware and software components.
- Carried out iterative development of the mechanical design and tuning of the PID controller responsible for stable flight in the PX4 firmware.
- Designed the onboard power distribution system PCBs for high-power propulsion and sensitive low-voltage control electronics.

Projects

RISCV32I Core - RTL2GDSII

- Implemented verilog for a RISCV32I core with SPI and UART interface on the Artix7 FPGA using the open-source F4PGA toolchain.
- Carried out the step-by-step modeling and understood the Physical design flow for generating a GDSII using the SKY130 PDK and OpenLANE.

VSDSquadron - RISCV Development Board

- Worked on the bring-up of skywater MPW chips and developed an open-source RISCV development board for education.
- Carried out multiple workshops for B.Tech students covering RISCV design, physical design, and embedded development using VSDSquadron.

Physical Verification SKY130 & OpenROAD 7nm Contest

- Gained an understanding of Physical Verification & and various DRC/LVS violations and the strategies to mitigate them using Netgen and Xschem.
- Implemented DRC for ASAP7 PDK and won the outstanding contribution award for the OpenROAD Flow Scripts Physical design tool.

Swadeshi Microprocessor challenge

- Semifinalists across teams worldwide to develop a fully functional prototype for warehouse automation using the Shakti Microprocessor.
- Proposed a business model and commercialization roadmap for the product and received funding of One hundred thousand INR.