Soham Kapur

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Results-driven engineer with a proven ability to tackle complex challenges and drive innovation. Demonstrated success in delivering impacting projects, optimizing algorithms, and leading teams.

Experience

Summer Intern | *Centre for Nanoelectronics and VLSI Design*, VIT Chennai — *June 2024 - July 2024*

- ASIC implementation of a 5-stage pipeline processor with RISC-V architecture.
- Designed and verified the Fetch and Decode stages of the processor in a team of 3.
- Tools Used: Verilog HDL, Xilinx Vivado.

Education

8.86/10 **BTech in Electronics and Computer Engineering**, *Vellore Institute of Technology*, Chennai, Tamil Nadu — *2021-25*

91% **Class XII (ISC Board)**, *Hiranandani Foundation School*, Thane, Maharashtra — *2019-21*

96% **Class X (ICSE Board)**, *Smt. Sulochanadevi Singhania School*, Thane, Maharashtra — *2007-19*

Relevant Courses: FPGA | VLSI Design | Embedded Systems | Signal Processing | Data Structures and Algorithms

Skills and Competencies

Electronic Design	Verilog HDL, Xilix Vivado, Cadence Virtuoso, LTSpice
System Design	Simulink, TinkerCad
Programming	Java, C, Python, Matlab, R
Robotics	Nucleo64 (STM32L152RE) Board, ArduPilot, Mission Planner, Arduino
Product Design	TinkerCad, SketchUp, Fusion360
Soft Skills	Enthusiastic, Fast Learner, Leadership, Teamwork, Problem-solving, Effective communication, Research, Adaptability, Time Management

Projects

Shorthand Mnemonic Based Assembly Language — *Mar 2024 - April 2024*

Mini Project

- Created the syntax and structure of an Assembly Language, initially with **42 possible instructions**.
- Implemented a **simulation in Java** of the instruction set, capable of performing basic operations.

Agricultural Turbo Drone for Crop Health Monitoring — *Nov 2023 - Dec 2023*

Design Patent

- Designed a drone body modification to enhance efficiency for **high thrust** in multi-rotor drones.
- Filed design patent for its unique **tapered motor housing** features relevant to agricultural industry.

Solving the Subset Problem by Timing the Greedy Algorithm — *Aug 2023 - Sep 2023*

Research Paper

- Analysed and verified a fast algorithm to find an **exact solution** of the Subset Sum Problem.
- Implemented the algorithm resulting in **200% higher speed** than the conventional methods.

Circuit Switching using Dynamic Programming — *May 2023 - July 2023*

Course Project - BCSE308L, Computer Networks

- Developed a Java program for Circuit Switching which performs static routing using a **Dynamic Programming** algorithm.
- Reduces number of **redundant paths** from the set of all possible paths in the Graph through custom parameters.

Leadership

Captain | *Team Aviators International*, VIT Chennai — *Dec 2023 - Present*

- Led a **45 member** technical student team working on **UAVs** and Fixed Wing model planes.
- Raised over **Rs.2,00,000** in funding for the team through sponsorship.
- Completed **5 products** and participated in 3 competitions using the same.

Competitions

GKN Aerospace Hackathon, PES University *(Runner Up)* — *Bangalore, India*

E-VTOL Air Taxi Concept by Team Aviators International — *07/2023 - 11/2023*

- Conceptualised a **vectored-thrust eVTOL** air taxi concept with detachable payload modules for multi-purpose usage.
- Led the team in building a scaled-down **Quad-plane model** as a Proof of Concept, with necessary hardware and software settings.
- **Technical Skills:** (Simulated model) Concept and Requirements Design, **Software in the Loop (SITL)** simulation on ArduPilot.
- **Hands-On Skills:** (Actual model) Sensor Interfacing, **Mission Planner,** ESC and BLDC motor interfacing, **Pixhawk configuration**.