Soham Panchal

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Academic Qualifications

Year	Degree/Certificate	Institute	Performance
2023 - Present	B.Tech	Indian Institute of Technology Kanpur	8.1/10
2023	AISSCE (XII)	Puna International School, Gandhinagar	95.4%
2021	AISSE (X)	Nand Vidya Niketan, Jamnagar	98.6%

Scholastic Achievements

- Secured **All India Rank 1221** in **JEE Advanced** among more than **2 Lakh** shortlisted candidates from across the country *(2023)*
- Advanced to 3rd Round of **LAM Research Challenge** securing **top 25 of 663 teams** held in Bangalore *(2024)*
- Secured **All India Rank 839** in **JEE Main** among **10 Lakh+** eligible candidates from across the country *(2023)*
- Achieved **21st** place in **BYUCTF**, competing against teams from all across the globe. *(2024)*

Key Projects

Duino Coin Mining | *Electronics Club, IIT Kanpur* | ☑   *Jan'24-Feb' 24*

Objective	• Design and build a basic **cryptocurrency mining rig** using **Arduino** and similar microcontrollers. • Compare the performance of different **microcontrollers** on the basis of their **Hash Rates**
Approach	• Used **Duino Coin** as the cryptocurrency for all the microcontrollers as it is eco-friendly and easily accessible • Performed **DUCO S1** algorithm for optimizing efficiency on all hardware. • The **Kolka reward system** ensured fair distribution, balancing mining output across different device types
Impact	• Successfully ran the **DUCO S1** algorithm on **8 different setups** ranging from **Node MCU** to **Rasperry Pi** • Achieved **1.34 MH/s** hash rate on **Rasperry Pi** and **342 kH/s** hash rate on **Arduino Uno**

Sign Language Recognition App | *Ksham Innovations* | *Sep'24 - Nov'24*

Objective	• Construct a recognition system using **Computer Vision** to interpret sign language
Approach	• Implemented a **Convolution Neural Network** for **ASL Detection** with feature of adding **a custom sign** using Python • Implemented the model as an **Anroid Application**, with interpretation happening **on device** • Created a **custom dataset** of over 200 images over various locations and lighting for testing over different people.
Impact	• Achieved an accuracy of over **95%** in recognising in real-time with the **CNN** model on our custom dataset • Successfully **implemented** the application with different features like **autocorrect** and **ASL Chart**

Open CV and Drones | *Electrical Engineers' Association, IIT Kanpur* | *Dec'23 - Jan '24*

Objective	• Detect **AruCo Markers** using **OpenCV** and navigate **Tello** Drones.
Approach	• Develop a deep understanding of CV concepts like **Gaussian Filters** and **CNNs** and **PID** control • Implemented a **PID** control system with **AruCo Marker Detection** and navigation on the Tello Drone
Impact	• Successful navigation of the drone and detection of the markers with **high stability and accuracy** in **real-time**

Liquid Cooling System using Peltier Module | *LAM Research Challenge* | ☑   *Oct '24*

Objective	• Implement a Liquid Cooling System using Peltier Module and a microcontroller
Approach	• Developed a cooling system using **TEC Peltier Module** with heat sink and a cooling fan and rubber insulation • Used an **Arduino Uno** to control the water flow of the pump and a **DS18 Temperature Sensor** to measure temperature • Implemented a **PID control system** for precise temperature control and water flow using a **2 relay module**
Result	• **Successful** implementation of the system and advancing for the third round of **LAM Research Challenge**

Technical Skills
Rudimentary Knowledge

Programming Languages	C | C++ | Python | Verilog HDL* | JavaScript
Libraries and Softwares	Numpy | Pandas | Matplotlib | OpenCV | Seaborn | Scikit-Learn

Relevant Courses
Ongoing Courses

Fundamentals of Computing	Probability & Statistics*	Linear Algebra
Data Structure & Algorithm	Multivariate Calculus	Introduction to Electronics
Ordinary Differential Equations	Analog Electronics*	Signals, Systems & Networks

Positions of Responsibility

- **Student Guide, Counselling Service Team** *(2024-25)*
  - Guided and mentored **5 freshmen** students in acclimatizing to the Environment of the Institute.
  - Helped them with their academics by arranging meetings with their mentors and still maintain a good rapport with them.
  - Coordinated with the Counselling Service and helped in the organisation of **Orientation Programme 2024**.
- **Secretary, Electronics Club** *(May '24 - Mar'25)*
  - Conducted **Workshops, Lectures and Competitions** on different domains in electronics for the Campus community.
  - Participated in various competitions like **SIH**, **LAM** and **ICASSP**.
- **Secretary, Debating Society** *(May '24 - Mar'25)*
  - Participated in various online and offline **debate contests**.
  - Conducted a **Freshers' Debating Competition** of over **150 freshers**.
  - Organized an online debating competition called **IITK APD** with over **80 teams** from around the world.