# Sanad Shaha

sanad22@iiserb.ac.in +91-9175083233 Homepage LinkedIn

## PROFILE

I am interested in robotics, control systems, and autonomous technologies, particularly in developing efficient algorithms for UAV (Unmanned Aerial Vehicles) applications. I am also fascinated by dynamic system modeling and seek innovative approaches to create solutions for complex applications. Alongside my engineering interests, I enjoy quizzing. I am eager to explore research opportunities that bridge theoretical concepts with practical applications, especially in multi-agent systems. These passions drive my commitment to continuous learning, creativity, and contributing to cutting-edge advancements in the field.

## RESEARCH EXPERIENCE

**Multi-agent Simulation and Control Lab** Mar 2024 – present
**Project Intern - Dr. Arijit Sen** Bhopal, India

- Successfully solved a 3D stationary target localization problem using Information Maximization, achieving optimal formation geometry for precise target estimation.
- Implemented a new control law to achieve the optimal formation geometry in 3D.
- Conducted extensive MATLAB simulations to validate the proposed solution, showcasing its effectiveness.

## EDUCATION

**Indian Institute of Science, Education and Research, Bhopal** 2022 – present
**BS Electronics and Communication Engineering- CPI: 8.15/10** Bhopal, India

**Alard Public School** 2020 – 2022
**CBSE Standard 12 - Percentage: 82.00%** Pune, Maharashtra

**Spicer Higher Secondary School** 2019 – 2020
**ICSE Standard 10 -Percentage: 93.70%** Pune, Maharashtra

## PROJECTS

**Stopwatch** Mar 2025
**Course Project- Digital Circuits and Systems**

- Undertaking a project on designing a stopwatch using combinatorial and sequential circuit elements and seven segment display.
- Simulating the circuit using Logic.ly and would later do an hardware implementation of the same.

**Self Balancing Ball and Beam** Oct 2024
**Course Project - Control Systems**

- Designed a control system to stabilize a ball on a beam by dynamically adjusting the beam's angle using a PID controller,
- Achieved precise position control by minimizing the error between the desired and actual positions of the ball.

## SKILLS

**Software:** MATLAB, AutoCAD, Simulink, LTSpice

**Programming Languages and Libraries:** Python- Numpy, Matplotlib

## ACHIEVEMENTS

**GATE 2025** 2025
**AIR 4672, GATE Score 452**

**Indian Control Conference Student Support** 2024
**Received financial support to attend Indian Control Conference 10.**

**IOQM Awardee** 2021
**Cleared Indian National Mathematics Olympiad, Stage 1**

## CONFERENCES

**Indian Control Conference 10** Dec 2024
**Attended ICC 10 held at IISER Bhopal** Bhopal, India

## COURSEWORK

**Electronics and Communication:**

Linear Control Systems, Control Systems, Digital Circuits and Systems, Electromagnetic Theory, Principles of Communications, Analog Circuits, Electronic Devices, SIgnals and Systems, Basic Electronics

**Mathematics and Computer Science:**

Machine Learning, Data Structures and Algorithms, Probability and Statistics, Complex Variables, Multivariable Calculus, Discrete Mathematics

## POSITIONS OF RESPONSIBILITY

**Team Lead: Quiz Club, IISER Bhopal** Jun 2023 – present

Organized and managed multiple quizzes, hosted multiple quizzes as a quizmaster. Coordinated with teams to plan events, ensuring smooth execution.

**Volunteer: Indian Control Conference 10** Dec 2024

Facilitated the food and accommodation arrangements to enhance the experience for participants of the 10th Indian Control Conference at IISER Bhopal.

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