Nishant Sharma

Roll No.:B22CH017
Bachelor of Technology
Chemical Engineering
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Education

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B.Tech.	Indian Institute of Technology, Jodhpur	7.89 (Current)	2022-Present
Senior Secondary	RBSE Board	89.6%	2021
Secondary	CBSE Board	87.2%	2019

Experience

- **Summer Research Intern** *May 2024 - July 2024*
  Supervisor: Prof. Kaushik Parida IIT Roorkee
  – Engineered a soft robotic arm with integrated piezoelectric sensors for precise control, featuring actuators for haptic feedback to enhance user interaction and accuracy in motion and grasping.
  – Utilized a Unity-based VR platform and real-time computer vision powered by Convolutional Neural Networks (CNNs) to improve motion tracking and grasping precision, providing seamless user visualization and control.
  – Tech Used: CNN, Computer Vision, Pytorch, Data Analysis, Unity, C#, Arduino IDE

Projects

- **Innovative Cooling and Dehumidification Solutions**
  Inter-IIT TechMeet 13.0 Project | Github
  – Designed a MATLAB/Simulink model of a vapor compression AC system with energy-efficient control logic and refrigerant optimization. Optimized HVAC components with dynamic compressor and fan controls, evaluating performance using EER/ISEER metrics and ensuring low-GWP, safety-compliant operation.
  – **Tools & technologies used**: Simulink, Matlab, Optimization
- **DAQ Based reactive Plant Design and Light Intensity Control System Integration**
  Supervisor: Prof. Ramesh Asapu / IIT Jodhpur | Github
  – Developed a LabVIEW protocol for precise valve automation in gas mixing systems, integrating DAQ for efficient control of light intensity and safety enhancements, including automatic closure of non-necessary valves.
  – **Tools & technologies used**: Labview, G programming, DAQ Analysis
- **Photocatalytic Reactor Design**
  Supervisor: Prof. Ramesh Asapu / IIT Jodhpur | Github
  – Led the research and development of an optimized photocatalytic reactor design to enhance photon utilization and product yield through innovative geometries. Implemented a modular, user-friendly structure for easy catalyst replacement, improving maintenance, efficiency, and scalability.
  – **Tools & technologies used**: SolidWorks, Reactor Design, Reactor Optimzation
- **Augmented and Virtual Reality Motion Capture**
  Exploratory Project
  – Developed smart socks with six pressure sensors and used CNNs to analyze signals for real-time motion capture. Integrated with Unity to create responsive 3D character animations that mirror user movements.
  – **Tools & technologies used**: self-powered sensors, CNN, Unity, C# , TensorflowSharp, Arduino IDE

Technical Skills

- **Programming:** C/C++, Python, HTML/CSS, SQL, C#, Flask, Streamlit
- **Tools & OS:** Git/Github, Jupyter Notebook, Linux, Windows, AWS, GCP, Docker, Unity, Labview, Matlab, Aspen Plus, Aspen Hysys
- **Libraries/Frameworks:** Pandas, Numpy, scikit-learn, Pytorch, Matplotlib
- **Web Skills:** HTML/CSS/JS, ReactJS/NextJS
- **Courses:** Plant Design, AI in Chemical Engineering, Process Control and AI Applications, Transport Phenomenon, Mass transfer, Heat Transfer, Chemical Reaction Engineering, Chemical Engineering Thermodynamics, Fluid Mechanics, Signal and Systems, Machine Learning, Probability-Statistics and Stochastic Processes

Positions of Responsibility

- **Assistant Head,** Techfest, IIT Jodhpur
- **Domain Lead,** Inter-IIT TechMeet 13.0

Achievements

- Secured 7th rank among 23 IITs in Inter IIT TechMeet 13.0
- Among top 4% in JEE Advanced 2022 and top 1.7% in JEE Mains 2022