

## Tentative Topics of Research

School of AIDE, IIT Jodhpur

| S.No. | Research Theme/Area   |
|-------|---|
| 1     | Predictive measurement to control reactor/ chemical processes   |
| 2     | Design of arrangements to distant control domino effects in chemical and process plants from safety view point  |
| 3.    | <ul style="list-style-type: none"><li>a. Air pollution (dust, sand) measurement, control, and planning</li><li>b. Lime/Stone/Handicraft Industry Design and efficiency enhancement</li><li>c. Proactive healthcare interventions for healthy individuals with AI</li></ul>                                  |
| 4.    | <ul style="list-style-type: none"><li>a. Real time traffic control/Intelligent Transportation System</li><li>b. Development and testing of a driving simulator in the context of multi-vehicle class traffic</li><li>c. Dynamic Traffic Assignment for multi-vehicle class transportation network</li></ul> |
| 5.    | <ul style="list-style-type: none"><li>a. Quantum Machine Learning</li><li>b. AI based large scale Solar Field design and other renewables</li></ul>   |
| 6.    | AI Based Strategic Decision Making  |
| 7.    | AI Driven Strategic Foresight   |
| 8     | Developing Smart material-decorated networking for pure water supply  |
| 9     | AI in Biology <ul style="list-style-type: none"><li>a. Multi-omics Data Science</li><li>b. Microbiome Data Science</li></ul>  |
| 10    | <ul style="list-style-type: none"><li>a. Bounded rationality and decision-making</li><li>b. Mechanism design</li><li>c. Evolutionary game theory and reinforcement learning</li></ul>   |
| 11    | <ul style="list-style-type: none"><li>a. Software Engineering for AI-intensive solutions</li><li>b. Solution architecture for Continuous learning in the context of data privacy and security</li></ul>   |
| 12    | <ul style="list-style-type: none"><li>a. Evolutionary multi objective optimization</li><li>b. Modeling of uncertainty and imprecision in decision problems</li><li>c. Preference learning</li></ul>   |
| 13    | Reliability based traffic management  |

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| 14 | Data analytics for predictive maintenance maintenance   |
| 15 | Social Media and Stock Markets  |
| 16 | Optimization for AI Systems   |
| 17 | Dynamical System for AI Environment   |
| 18 | Applications of AI for 5G and Beyond Communications   |
| 19 | Deep Learning for Small Sample Size Social-Good Problems  |
| 20 | Trustworthy and Decent Human AI Interactions  |
| 21 | Reliability analysis for AI Systems   |
| 22 | AI Applications in Toys, Games and early age Learning Systems:  |
| 23 | AI role in MSMEs scaling challenge  |
| 24 | AI based 3D Human and Motion Modeling   |
| 25 | AI for assisting people with disabilities   |
| 26 | <ul style="list-style-type: none"> <li>a. Machine Learning for Next-Generation Intelligent Transportation Systems</li> <li>b. Machine Learning and Blockchain-Based Energy Exchange Framework for Smart Grids</li> <li>c. Advanced driver assistance systems (ADAS) using Machine Learning</li> </ul> |