Dr. Yashvardhan Sharma

Project/Thesis/Dissertation/SAT Problems offered for First Semester 2023-24

❖ **Question Answering System (QAS) for Online Services**

1. Improving the accuracy of the Text-Visual Question Answering System (Text-VQA) that can read text from the daily scene images and document images-to help the visually impaired people and for a better navigation system. Use the individual and multimodal attention mechanism for effectively joining all the modalities in a common space to provide the exact answer.

2. Developing a Visual Dialogue System (Visual Chatbot) by identifying the Intent in the question, Image, and dialogue history.

3. Developing a Visual Question Answering System (VQA) that can answer a natural language question by extracting the visual features from the given Image. Improving the accuracy of the Multi-lingual VQA system for the Indian languages.

4. Developing an Ontology-based Question Answering System with the LCQUAD dataset and improving the problem of Entity/Relation resolution using the knowledge graph.

5. Improving the accuracy of the FAQ-based Question Answering System, which recommends a list of similar questions to the user.

❖ **Fake News Detection in Social Media (FND)**

1. Cross-Lingual Fake News Detection using the Fact-checked given by the high-resource languages to be used in the Low-resource languages.

2. Fake News Detection by leveraging the latest Few shot and Zero shot learning methods for the Multilingual using the Low-resource languages such as Indian Languages: Hindi, Bengali etc.

3. Design a Multimodal and Multilingual framework for the Weibo dataset (Chinese) using Transfer Learning.

❖ **Machine Translation**

1. **Using Large Language Models to improve Machine Translation for Indic languages**

❖ **Human Action Recognition**

1. Visual feature determination and system development for Alzheimer's.

2. Visual feature determination and system development for dementia.

3. Visual cues determination and system development Post Stroke.

❖ **Designing Optimal and Targeted Advertisement Campaign Strategy for Online E-Commerce Platforms using AI and Machine Learning**

1. Analyzing and predicting factors affecting the overall profitability of an advertisement campaign.

2. Identifying and explaining the impact of changing input variables [Bid, Budget] on the output metrics [%impression share, ROAS - return on adspend] across such campaigns.

❖ **Conversational AI to understand customer behavior :**
- Developing a Conversational Chatbot for Omni-Channel Customer Experiences.
- Build a Conversational Model Based on Reinforcement Learning Which Generates Responses in Native-Language.
- Improving Conversational System of Unscripted, Unplanned Responses using Machine Learning to get Accurate Responses.
- Developing a Multi-Lingual Embodied Conversational Question- Answering agents.
- Implementing a Rasa-X: Simultaneous Conversational Chatbot for Multi-intent.
- Implementing a Neural Conversational Model for Multilingual Question-Answering System.

<u>For Students</u>

Please fill in your academic details by 10th April 2023 for the SOP/ LOP /Thesis

Please fill your interest https://forms.gle/Pv6op4mpxViFH7157

http://www.bits-pilani.ac.in/pilani/computerscience/WebIntelligenceandSocialComputingLab

Opportunity Available