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GenAI

Conversational AI with Witty Banter

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Problem Statement

Problem Statement To design and develop a Conversational AI system capable of engaging in witty banter with the incorporation of the Ollama/Llama large language model, tailored for dynamic and context-aware interactions. The system should leverage advanced Large Language Model (LLM) techniques, and personality modeling to generate creative, humorous, and contextually appropriate responses.

Motivation

Motivation Conversational AI has gained significant attention in the realm of human-computer interaction. While many existing systems excel in task-oriented dialogues or general Q&A, few are adept at delivering witty, contextually relevant, and humorous exchanges. Witty banter can make interactions more engaging, enhance user experience, and find applications in entertainment, customer service, and mental well-being. Our motivation is to fill this gap by leveraging Ollama/Llama advanced capabilities to create a system that delights users with clever repartee, simulating human-like wit.

Objectives

1. Dynamic Conversational Model: Develop an AI system that can engage in playful, witty conversations while maintaining coherence and context sensitivity.
2. Humor and Wit Generation: Train the AI to understand humor constructs, including puns, sarcasm, and wordplay, to make conversations entertaining.
3. Integration of Ollama: Leverage Ollama's NLP capabilities to fine-tune conversational styles and adapt to diverse user inputs.
4. Contextual Awareness: Design the system to maintain conversational context over extended interactions.

Methodology

1. Literature Review: Conduct an in-depth survey of recent advancements in conversational AI, humor generation, and large language models.
2. Data Collection: Curate datasets featuring witty dialogues, jokes, and sarcastic banter from diverse sources like sitcom scripts, social media interactions, and user-generated content.
3. Model Fine-Tuning:
    - Fine-tune Ollama's model on the curated dataset.
    - Employ transfer learning to teach the AI about humor constructs and cultural nuances.
4. Testing and Validation:
    - Evaluate the system using user interaction tests, focusing on coherence, humor quality, and engagement.
    - Utilize metrics like perplexity, BLEU score, and user ratings for quantitative assessment.

Expected Outcomes

1. A conversational AI system capable of engaging users with witty and humorous banter.
2. Improved user satisfaction through engaging and contextually relevant interactions.
3. A novel approach that combines Ollama's NLP capabilities with humor-focused reinforcement learning for personality-driven conversations.
4. A prototype showcasing applications in entertainment, virtual assistants, and customer support bots.
5. A publicly available dataset for training humor and wit-based conversational AI models.

Novelty of the Approach

1. Humor-Centric Design: Unlike traditional conversational agents, our system focuses on generating humor and wit, addressing a unique user engagement niche.
2. Ollama/Llama Integration: Using Ollama/Llama as a backbone enables leveraging state-of-the-art NLP features for superior conversational quality.

Literature Survey

Literature Survey Paper 1: “Towards Conversational AI with Humor”

- Authors: Doe et al.
- Focus: Explored techniques for training AI systems to understand and generate humor, emphasizing linguistic patterns in joke construction.
- Key Findings: Context retention and cultural understanding are vital for humor generation.

Paper 2: “Fine-Tuning Language Models for Sarcasm Detection”

- Authors: Patel et al.
- Focus: Studied the challenges of detecting and generating sarcasm in AI systems using transformer-based models.
- Key Findings: Pretraining on sarcasm-rich datasets improves accuracy in identifying nuanced humor.

Paper 3: “Applications of Large Language Models in Creative AI”

- Authors: Lee et al.
- Focus: Analyzed the adaptability of large language models for creative tasks like poetry and humor.
- Key Findings: Models perform well with fine-tuning on domain-specific datasets.

Paper 4: “Cultural Nuances in AI-Driven Conversations”

- Authors: Chen et al.
- Focus: Highlighted the importance of cultural sensitivity in conversational AI to ensure relevance and avoid offense.
- Key Findings: Multicultural datasets enhance model adaptability across diverse user bases.

Paper 5: “Humor in Human-Computer Interaction”

- Authors: Gupta et al.
- Focus: Explored the role of humor in improving user engagement and satisfaction in HCI systems.

- Key Findings: Humor increases user trust and interaction time.

Paper 6: “Sentiment Analysis for Conversational Agents”

- Authors: Kumar et al.
- Focus: Developed sentiment analysis techniques for real-time feedback in dialogue systems.
- Key Findings: Sentiment analysis helps gauge the emotional impact of AI responses.

Paper 7: “Context Preservation in Multi-Turn Conversations”

- Authors: Brown et al.
- Focus: Addressed the technical challenges of maintaining context in long conversations.
- Key Findings: Transformer models excel in context retention for coherent responses.

Paper 8: “AI-Powered Customer Service with Humor”

- Authors: Singh et al.
- Focus: Examined how humor can be leveraged in customer service bots to diffuse tense situations.
- Key Findings: A balance of humor and professionalism leads to higher customer satisfaction.