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AI Subfields and Summary

The slides we had covered have a wide range of artificial intelligence (AI) subfields, as highlighted in slide 5. The list includes computer vision, neural networks, machine learning, deep learning, reinforcement learning, robotics, AI agents, AGI (Artificial General Intelligence), large language models (LLMs), multimodal AI, supercomputing, and natural language processing (NLP), among many others. These subfields represent various research areas and applications of AI that span across different industries, from automating tasks and understanding natural languages to advanced model training on high-performance computing (HPC) systems.

Most Interesting Topic for me: Question Answering

One of the topics that stands out to me is question answering (QA), which falls under natural language processing (NLP) and large language models (LLMs). QA systems aim to provide precise and contextually accurate responses to user questions, often leveraging models like GPT and BERT. These models are trained on vast datasets to understand context, intent, and provide relevant answers. This topic interests me due to its applicability in real-world problem-solving environments, such as customer service, education, and digital assistants.

Previous Knowledge and Experience

I have prior experience with developing an AI-powered chatbot for student services. In this project called SPBPU-GPT, I used advanced NLP models to provide accurate and contextually relevant answers to student queries. The chatbot was integrated into a Telegram platform to enhance the student experience by answering any questions.

Expectations from the Course

I expect to deepen my understanding of advanced AI techniques such as:

1. Large Language Models (LLMs): learning more about how transformers, like GPT and BERT, are trained and fine-tuned for specific tasks like question answering.
2. Multimodal AI: exploring how AI models can integrate different types of data (e.g., text, images, video) to make more comprehensive decisions.
3. Reinforcement Learning: understanding how agents can learn optimal actions through reward-based systems, which could improve AI performance in dynamic environments.

4. Generative AI and GANs: investigating how AI generates new data and its potential for applications such as image, audio, and text generation.

5. Supercomputing for AI: learning about the integration of AI models with HPC resources to manage and process large datasets efficiently.

Lastly, I expect this course to provide me with a deeper theoretical and practical understanding of these AI techniques and help me apply them to real-world scenarios, particularly in improving question-answering systems.