Week 3 resources

Below you'll find links to the research papers discussed in this weeks videos. You don't need to understand all the technical details discussed in these papers - **you have already seen the most important points you'll need to answer the quizzes** in the lecture videos.

However, if you'd like to take a closer look at the original research, you can read the papers and articles via the links below.

Generative AI Lifecycle

- **Generative AI on AWS: Building Context-Aware, Multimodal Reasoning Applications** - This O'Reilly book dives deep into all phases of the generative AI lifecycle including model selection, fine-tuning, adapting, evaluation, deployment, and runtime optimizations.

Reinforcement Learning from Human-Feedback (RLHF)

- **Training language models to follow instructions with human feedback** - Paper by OpenAI introducing a human-in-the-loop process to create a model that is better at following instructions (InstructGPT).
- **Learning to summarize from human feedback** - This paper presents a method for improving language model-generated summaries using a reward-based approach, surpassing human reference summaries.

Proximal Policy Optimization (PPO)

- **Proximal Policy Optimization Algorithms** - The paper from researchers at OpenAI that first proposed the PPO algorithm. The paper discusses the performance of the algorithm on a number of benchmark tasks including robotic locomotion and game play.
- **Direct Preference Optimization: Your Language Model is Secretly a Reward Model** - This paper presents a simpler and effective method for precise control of large-scale unsupervised language models by aligning them with human preferences.

Scaling human feedback

- **Constitutional AI: Harmlessness from AI Feedback** - This paper introduces a method for training a harmless AI assistant without human labels, allowing better control of AI behavior with minimal human input.

Advanced Prompting Techniques

- **Chain-of-thought Prompting Elicits Reasoning in Large Language Models** - Paper by researchers at Google exploring how chain-of-thought prompting improves the ability of LLMs to perform complex reasoning.
- **PAL: Program-aided Language Models** - This paper proposes an approach that uses the LLM to read natural language problems and generate programs as the intermediate reasoning steps.

- **ReAct: Synergizing Reasoning and Acting in Language Models** This paper presents an advanced prompting technique that allows an LLM to make decisions about how to interact with external applications.

LLM powered application architectures

- **LangChain Library (GitHub)** - This library is aimed at assisting in the development of those types of applications, such as Question Answering, Chatbots and other Agents. You can read the documentation here.
- **Who Owns the Generative AI Platform?** - The article examines the market dynamics and business models of generative AI.