# 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](https://www.amazon.com/Generative-AI-AWS-Multimodal-Applications/dp/1098159225/) - 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](https://arxiv.org/pdf/2203.02155.pdf) - 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](https://arxiv.org/pdf/2009.01325.pdf) - 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](https://arxiv.org/pdf/1707.06347.pdf) - 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](https://arxiv.org/pdf/2305.18290.pdf) - 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](https://arxiv.org/pdf/2212.08073.pdf) - 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](https://arxiv.org/pdf/2201.11903.pdf) - 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](https://arxiv.org/abs/2211.10435) - 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](https://arxiv.org/abs/2210.03629) 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)](https://github.com/hwchase17/langchain) - 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](https://docs.langchain.com/docs/).

# [Who Owns the Generative AI Platform?](https://a16z.com/2023/01/19/who-owns-the-generative-ai-platform/) - The article examines the market dynamics and business models of generative AI.

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