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# LLM fine-tuning on Palmetto

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# LLM fine-tuning

*When should you fine-tune an LLM?*

# Why people want to fine-tune

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- The task the LLM will perform is not present in the training data
- The task the LLM will perform is much more specific and narrow than the training data
- To provide additional knowledge base

# Why people want to fine-tune

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## Common use cases<sup>1</sup>:

- Setting the style, tone, format, or other qualitative aspects
- Improving reliability at producing a desired output
- Correcting failures to follow complex prompts
- Handling many edge cases in specific ways
- Performing a new skill or task that's hard to articulate in a prompt

# Why you probably don't need to fine-tune

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Prompt engineering, few-shot learning (FSL), and retrieval-augmented generation (RAG) can accomplish all of these things *without* fine-tuning.



# Why you probably don't need to fine-tune

**Prompt engineering:** Designing and refining input instructions to elicit desired outputs from LLMs, optimizing clarity, relevance, or goal alignment.

## Poor prompt for NER

**User:** Who or what is referred to in "The Apple executive executed an apple tree."

**AI:** The phrase "The Apple executive executed an apple tree" is an example of a sentence with ambiguous meaning due to the homonym "apple" which can refer to both the fruit and the technology company. Without further context, it is difficult to determine the precise meaning intended by the sentence.

Prompt  
Eng.

## Improved prompt for NER

**User:** Produce a list of every entity in the following text: "The Apple executive executed an apple tree." Include no additional text.

**AI:**

1. Apple (company)
2. Executive (position/role)
3. Apple tree

