

# Workshop Goals:

Understanding when to use  
**Machine Learning** vs **Deep Learning**

Being comfortable with how  
**Scikit-learn** & **PyTorch** work

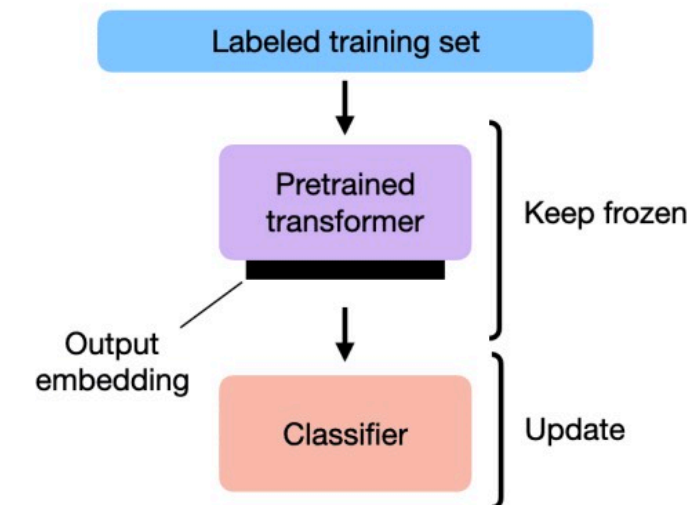
# More LLMs?

## Finetuning Large Language Models

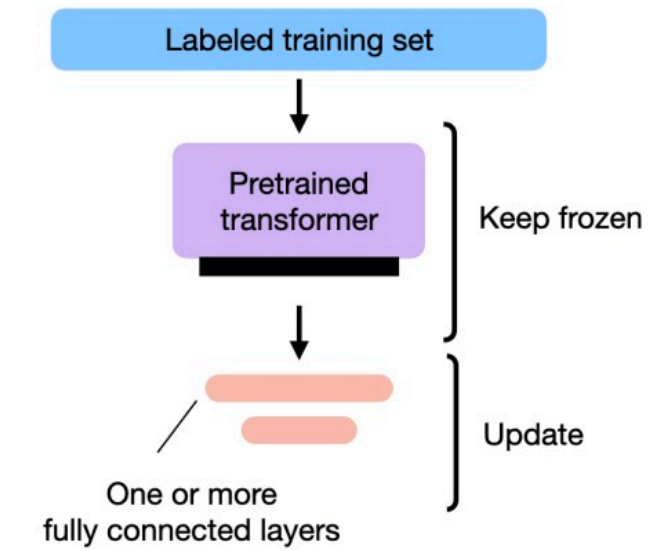
An introduction to the core ideas and approaches

<https://magazine.sebastianraschka.com/p/finetuning-large-language-models>

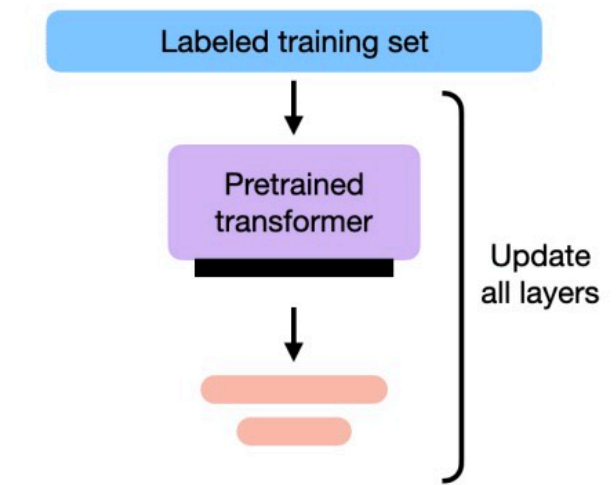
### 1) FEATURE-BASED APPROACH



### 2) FINETUNING I

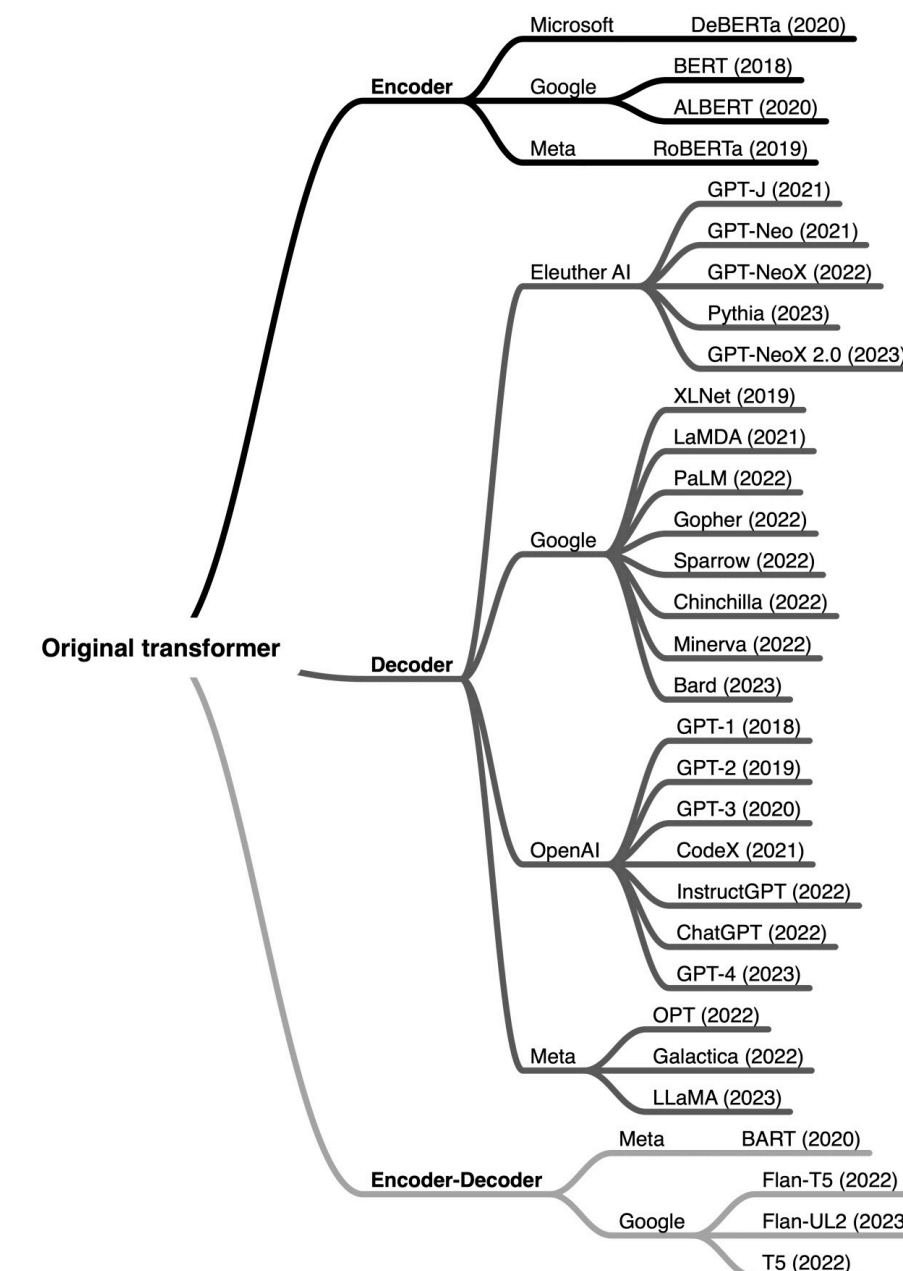


### 3) FINETUNING II



## Understanding Encoder And Decoder LLMs

<https://magazine.sebastianraschka.com/p/understanding-encoder-and-decoder>



# More LLMs?

## ⚡ Lit-GPT

Hackable [implementation](#) of state-of-the-art open-source large language models released under the **Apache 2.0 license**.

Supports the following popular model checkpoints:

Model and usage	Reference
Meta AI <a href="#">Llama 2</a>	<a href="#">Touvron et al. 2023</a>
Stability AI <a href="#">FreeWilly2</a>	<a href="#">Stability AI 2023</a>
Stability AI <a href="#">StableCode</a>	<a href="#">Stability AI 2023</a>
TII UAE <a href="#">Falcon</a>	<a href="#">TII 2023</a>
OpenLM Research <a href="#">OpenLLaMA</a>	<a href="#">Geng &amp; Liu 2023</a>
LMSYS <a href="#">Vicuna</a>	<a href="#">Li et al. 2023</a>
LMSYS <a href="#">LongChat</a>	<a href="#">LongChat Team 2023</a>
Together <a href="#">RedPajama-INCITE</a>	<a href="#">Together 2023</a>
EleutherAI <a href="#">Pythia</a>	<a href="#">Biderman et al. 2023</a>
StabilityAI <a href="#">StableLM</a>	<a href="#">Stability AI 2023</a>
<a href="#">Platypus</a>	<a href="#">Lee, Hunter, and Ruiz 2023</a>
NousResearch <a href="#">Nous-Hermes</a>	<a href="#">Org page</a>
Meta AI <a href="#">Code Llama</a>	<a href="#">Rozière et al. 2023</a>

This implementation extends on [Lit-LLaMA](#) and [nanoGPT](#), and it's powered by [Lightning Fabric](#) ⚡.

<https://github.com/Lightning-AI/lit-gpt>

# Computer Vision?

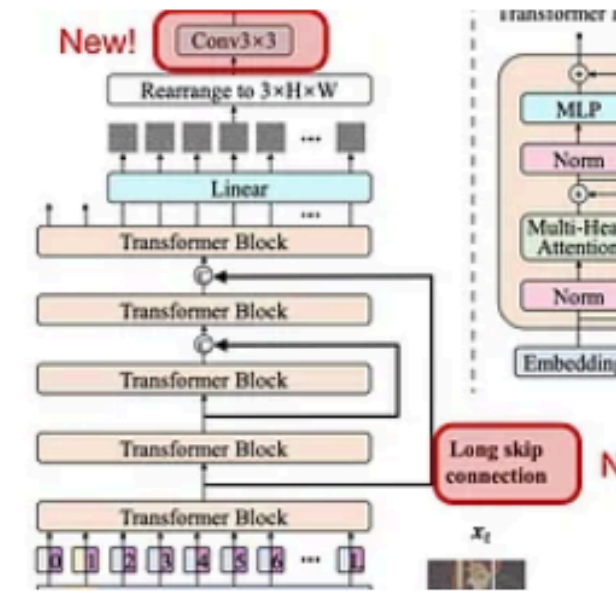


## Ahead of AI #10: State of Computer Vision 2023

Large language model development (LLM) development is still happening at a rapid pace. At the same time, leaving AI regulation...

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<https://magazine.sebastianraschka.com/p/ahead-of-ai-10-state-of-computer>



By Sebastian Raschka, PhD

### Ahead of AI

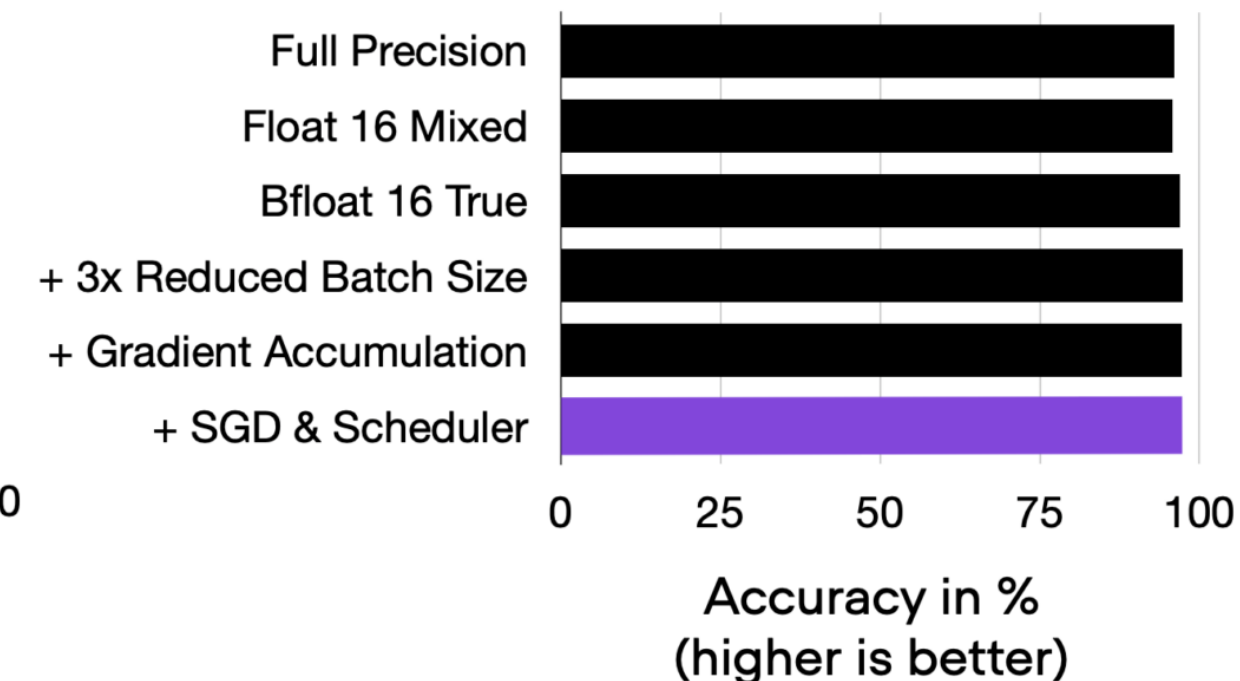
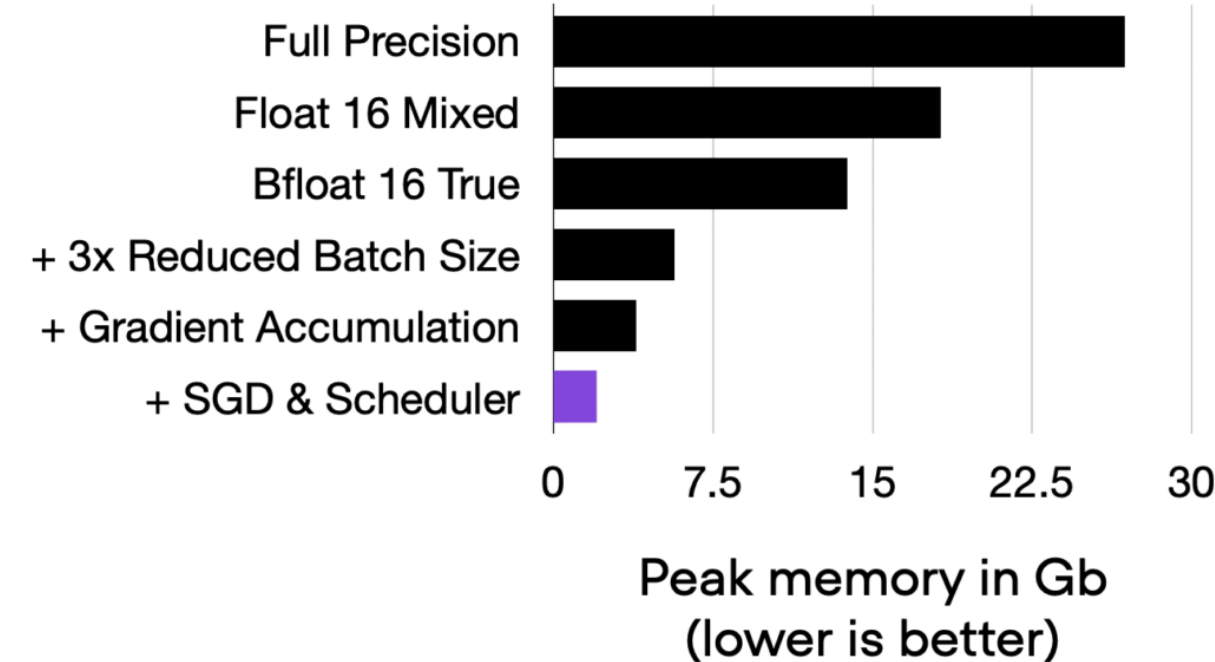
Ahead AI specializes in Machine Learning & AI research and is read by tens of thousands of researchers and practitioners who want to stay ahead in the ever-evolving field.

By Sebastian Raschka Over 31,000 subscribers

<https://magazine.sebastianraschka.com/>

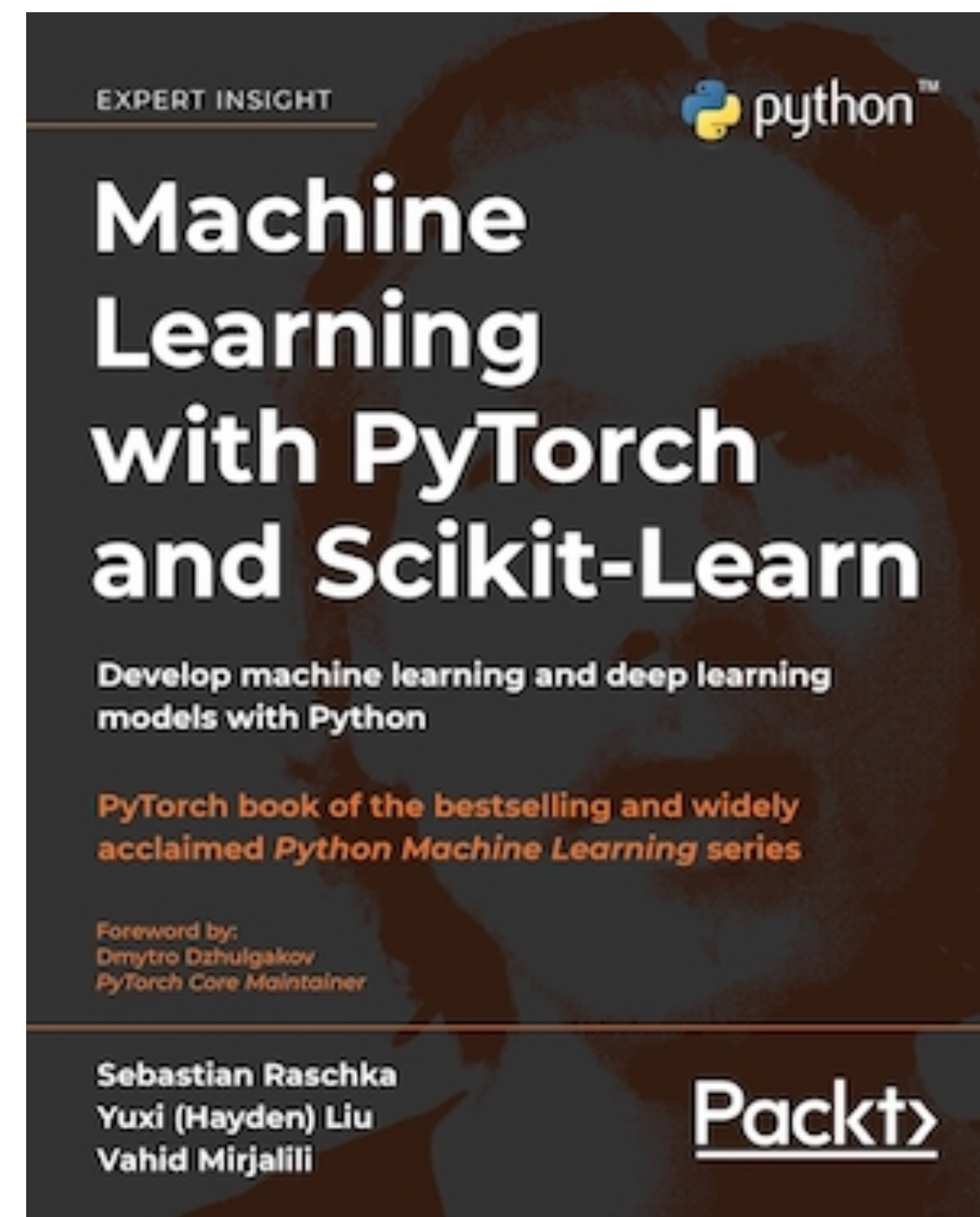
**Optimizing Memory Usage for Training LLMs and Vision Transformers in PyTorch**

Read More

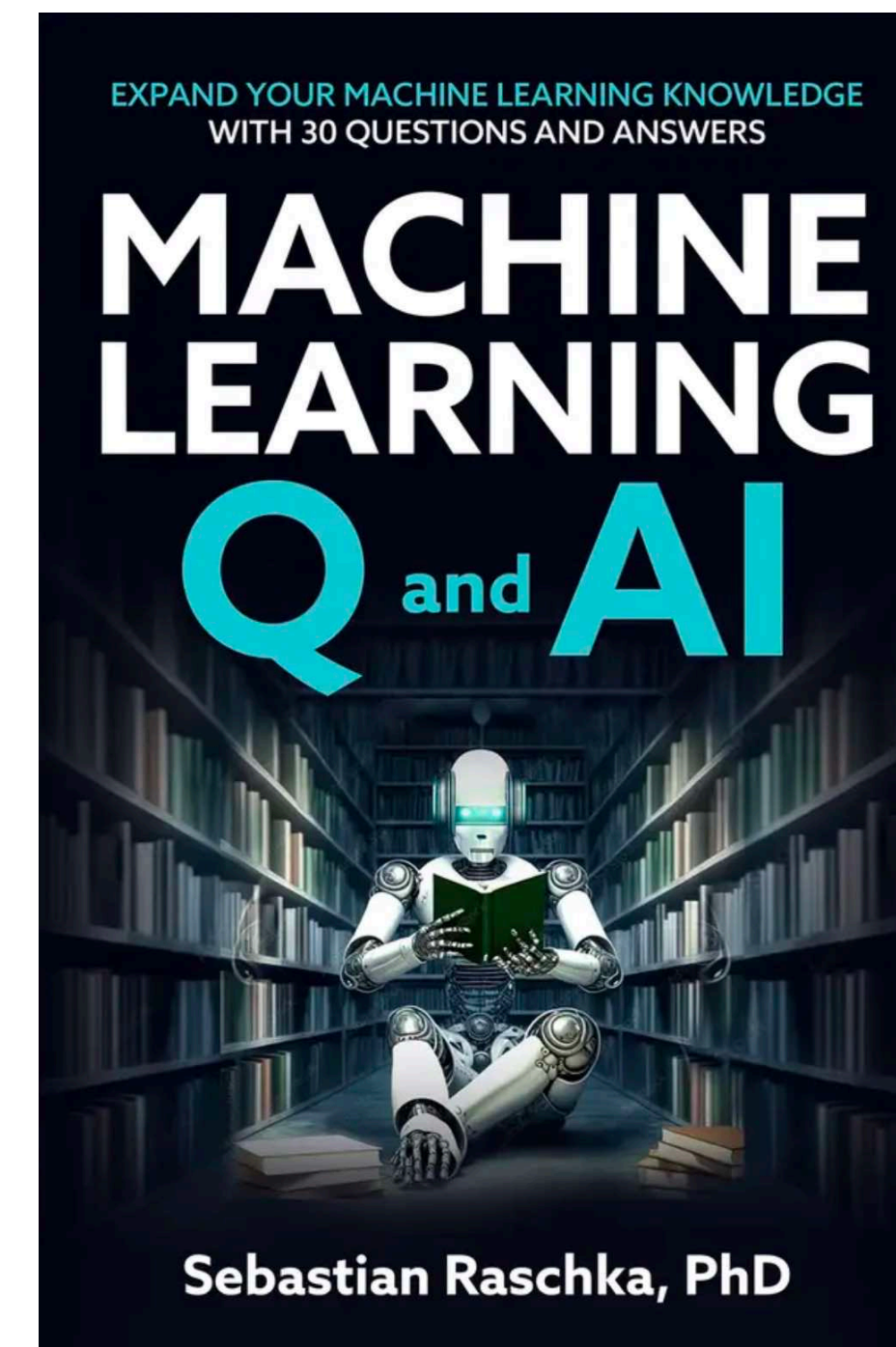


<https://lightning.ai/pages/community/tutorial/pytorch-memory-vit-llm/>





Topics covered in this workshop (but very different presentation)



More advanced concepts in ML and AI

<https://sebastianraschka.com/books/>

# Contact

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# Code & slides

 <https://github.com/rasbt/posit2023-python-ml>