

# Large Language Models (LLMs)

## Introduction and Opportunities

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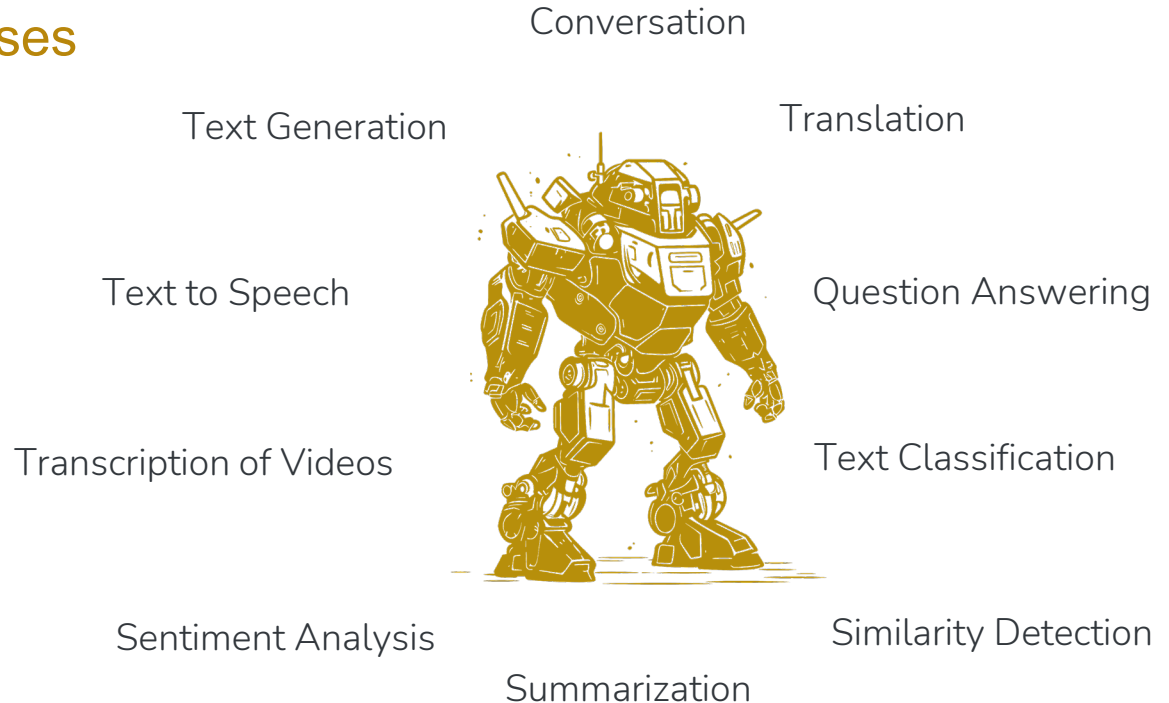
Speaker: Simeon Harrison

Use-case presentation: Monica Rotulo

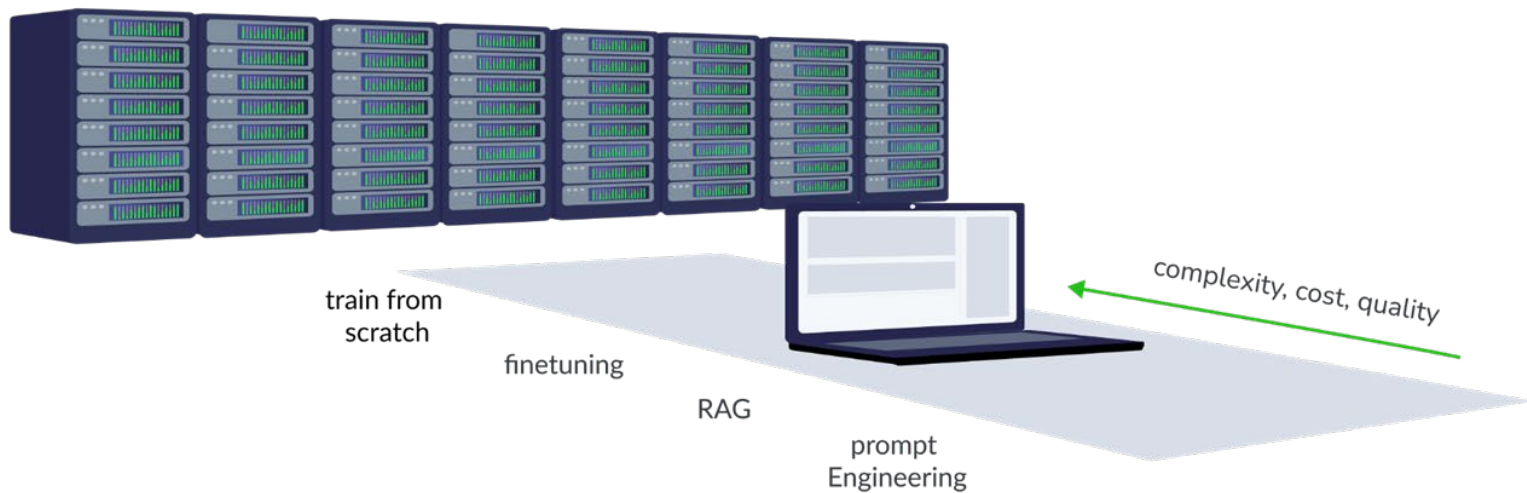
# What can LLMs be used for?

## Many different use cases

- Made possible by the transformer architecture
- Choose your model according to the use-case
- Make sure you know your use-case



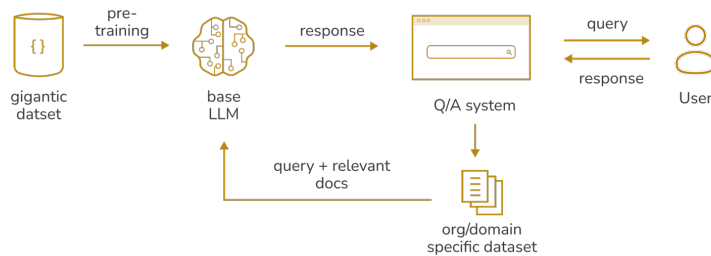
# How can you influence LLMs?



# How can you use LLMs with your data?

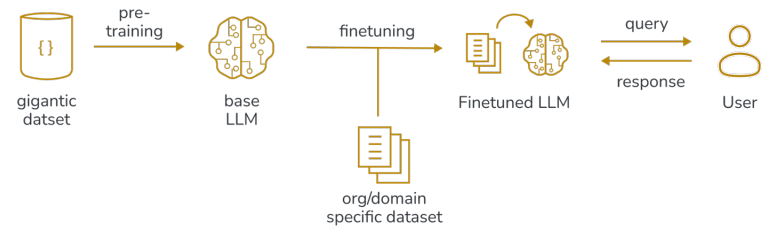
## RAG:

### Retrieval Augmented Generation



- Ideal for tapping into company's knowledge DBs
- Minimises hallucinations by grounding response on retrieved evidence
- Can quickly adapt to changing data
- Makes it easier to interpret result

## Finetuning



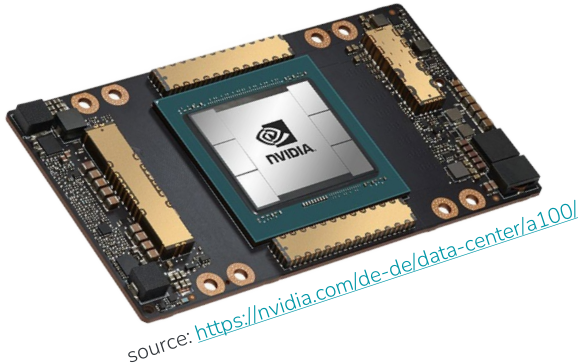
- Ideal if plenty of labelled data is available
- Teaches model domain specific vocabulary
- Company's writing/answer style is „baked“ into model through fine-tuned parameters

# The Vienna Scientific Cluster

## VSC-4 (2019)

790 CPU nodes

- 2x Intel Skylake Platinum CPUs
- 2x 24 cores per CPU
- 96 GB of memory per node



## VSC-5 (2022)

770 CPU nodes

- 2x AMD EPYC Milan
- 2x 64 cores per CPU
- 512 GB of memory per node

60 GPU nodes 2x NVIDIA A100,

- 40 GB memory per GPU

40 GPU nodes 2x NVIDIA A40

- 40 GB memory per GPU

# European HPC Landscape

## EuroHPC JU systems

Different access modes:  
[Calls for Proposals](#)

EuroHPC development access:  
[Opportunity to test the system](#)

Applicants can request a small number of node hours to get acquainted with the supercomputers to further develop their software.



# THANK YOU

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