The Impact of Large Language Models and Generative AI on Law, Jurisprudence, and Society

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The main reasons and goals behind this presentation

• Discussions surrounding generative artificial intelligence have increased among legal professionals, policymakers

• Problems about legal related discussions about AI
  + Too specific
  + Too general and too broad

• Main argument: to fully comprehend the legal and societal challenges posed by artificial intelligence-based solutions, it is crucial to have a basic understanding of the technical workings, capabilities, and limitations of various types of AI
The structure of the presentation

The essence of Large Language Models

Possible applications in the legal field

Current limitations of the use of LLMs
The main technical solution behind Chat GPT: language models

- Vectorisation: the process to make numerical representation of unstructured texts for machine learning algorithms to process it
- Main types of vectorisation:
  + Statistical approach
  + Word embeddings
  + Language models
The core structure of the architecture

+ Encoder: responsible for transforming the incoming text into a form that the model can understand
+ Decoder: generates the expected text/phrase/expression based on the text representation received from the encoder and possibly other inputs
+ Not essential to have both modul
Possible applications in the legal field

• Natural Language Understanding (NLU), Natural Language Generation (NLG), and the combination of these

• NLU
  + Legal databases and search engines
  + Document classification

• NLG
  + Document (e.g. contract) generation

• The combination of the two capability
  + Automatic summary generation
Current limitations of Large Language Models

- Exposure for closed models like GPT and BARD -> Open source models
- Hallucination -> Retrieval Augmented Generation (RAG) and more efficient fine-tuning
- High computational capacity demand -> Low-rank Adaptation, Quantization
- Data privacy and copyright issues -> ???
**Conclusion**

1. If we want to fully comprehend the ethical, legal, and societal challenges posed by artificial intelligence-based solutions, it is crucial to have a basic understanding of the technical workings, capabilities, and limitations of various types of AI.

2. If we want to talk about regulations and the impacts of artificial intelligence-based solutions, we cannot be too general and cannot be too specific about the solution. We need to find a practical framework to discuss and regulate them.
Thank you for your attention!