Using Generative Language Models for Policy Research

Edgar Salas Gironés
e.girones@tudelft.nl

July 1, 2025

What Are Generative Language Models?

- AI models that generate human-like text.
- Examples: ChatGPT, Claude, Mistral, Gemini
- It is based on token-level predictions:
- Technically, LLMs do not understand nor reason, they only provide information based on probabilities!

Alert! LLMs will always produce something.

LLMs will always produce something. Thus, we have two important tasks to make LLMs work 'better':

- Reduce the amount of inaccurate information being produced (e.g. IPPA is taking place in Siam (rather than Thailand)).
- Reduce the model tendency to 'create' information, i.e. hallucination (e.g. IPPA stands for International Pigeon Professionals Association)).

Why this matters?

- You can reduce hallucinations by techniques, such as temperature, information retrieval, etc.
- You can reduce wrong information by update information, fact checking, human evaluation.

Prompt Engineering 101

How you interact with an LLM? Through prompting.

What constitutes a prompt?

- Context.
- Instruction.
- Input data (almost always)
- Indication of how you want the output.

Chain-of-Thought Prompting

- Break complex tasks into steps
- Guide the model through reasoning
- Example:
  1. Extract the main claim
  2. Identify supporting evidence
  3. Write a neutral summary

How to do it in practice?

You would start small, with a basic prompt, e.g. giving only basic information and an instruction, and later refine it in small iterations. You would compare the results you get with a 'ground truth', or human made example.