

EcoPrompt: Inspiring Sustainability Through AI-Generated Prompts

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ABSTRACT

We present Graph of Thoughts (GoT), a framework that takes the prompting capabilities of large language models (LLMs) to a higher level compared to existing paradigms like Chain Of Thought (CoT) or Tree Of Thought (ToT). The core concept involves the capability to represent the provided information as a flexible graph. It paves the way for giving LLM, the human-like thinking (non-linear). This model also reduces the GPU cycles required for computing the information thus reducing the carbon footprint.

INTRODUCTION

LLM is an advanced AI model known for its proficiency in understanding and generating human language. LLMs, with their substantial size and language capabilities, drive a paradigm shift in AI. While revolutionising human-machine interaction, LLMs' training demands substantial computational resources, leading to notable carbon emissions. This highlights the urgency of mitigating this environmental impact by employing innovative approaches like prompt engineering to enhance LLM efficiency and reduce ecological footprint.

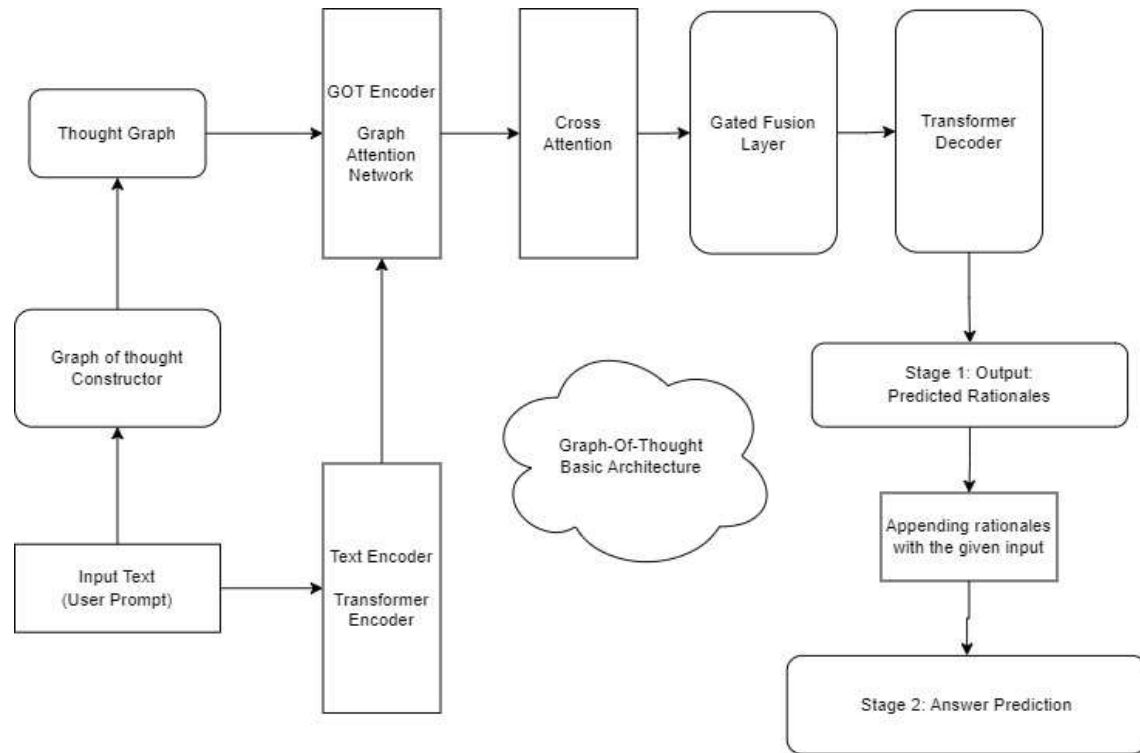
PROBLEM STATEMENT

The carbon footprint of AI is affected by the complexity of tasks, and the training processes. The existing LLMs suffer from problematic content generation and biases, which impact the model's performance. The inefficiency of AI prompting worsens the translation of raw AI capabilities into practical solutions. Hence, addressing these issues necessitates a comprehensive approach that mitigates content concerns, optimises AI processes, and ultimately ensures a responsible and sustainable AI ecosystem.

PROPOSED SOLUTION

The **Graph of Thoughts (GoT)** is a framework that allows large language models to model information as an **arbitrary graph**. The units of information (“LLM thoughts”) are **vertices**, and **edges** correspond to dependencies between these vertices. This approach enables human-like non-linear thinking and provides various prompts that reduce the GPU cycles required for computation, thus reducing the carbon footprint.

BASIC GOT ARCHITECTURE (TENTATIVE)



NOVELTY

- Enabling non-linear logic, allowing the AI to explore ideas from various angles and potentially leading to more accurate outputs.
- **Contextual Misinterpretation:** The graph's interconnected structure can help AI systems better comprehend and retain context over extended conversations, reducing the likelihood of misunderstanding user intent.
- This software design optimization can help reduce the overall carbon footprint of AI.

CONCLUSION

Thus the solution improves AI-generated responses and tackles environmental concerns by decreasing computational demands and the resulting carbon footprint. The GoT framework signifies progress in balancing advanced AI capabilities with ecological sustainability, paving the way for a more responsible era of AI development. This enhances response quality, making AI outputs more accurate and coherent. Additionally, it addresses the energy-intensive nature of AI operations, contributing to reduced environmental impact. By merging technological advancement with eco-friendliness, the GoT framework sets a precedent for responsible AI progress. This marks a positive step towards a greener and more efficient AI landscape.