

Transforming Libraries for the Future: Elevating Service Innovation with Generative Artificial Intelligence and Prompt Engineering

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Everyone could be a Sorcerer with Generative AI



- Generative AI (GenAI) is commonly accessible and will become more prevalent.
- An assistive tool to apply your domain knowledge to specific tasks
- People who know how to utilize AI will be more powerful than those who don't.

Interact with GenAI need Skills

ChatGPT 4 ▾

You
when the transformer was invented

ChatGPT
The transformer, an essential device for transmitting power over long distances, was developed by Nikola Tesla in the late 19th century. It consists of two or more circuits through electromagnetic induction. The development attributed to the invention of the transformer is credited to Michael Faraday, who discovered electromagnetic induction in the early 19th century. The transformer design was developed by Heinrich Lenz and Károly Zipernowsky in 1885, which they patented. This design laid the foundation for the widespread use of transformers.

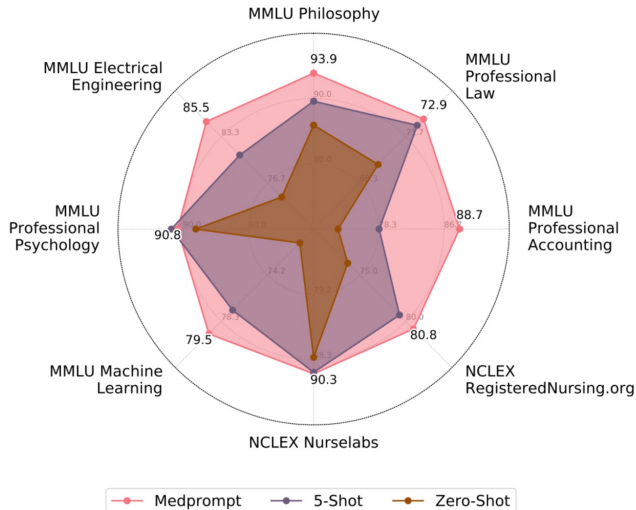
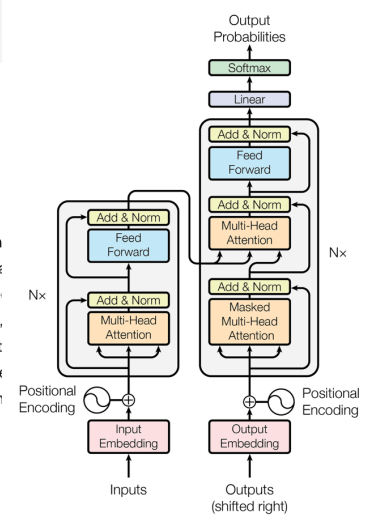


Figure 3: GPT-4 performance with three different prompting strategies on out-of-domain datasets. Zero-shot and five-shot approaches represent baselines.

ChatGPT 4 ▾

You
when the transformers was invented

ChatGPT
The concept of transformer models in natural language processing (NLP), was introduced by Vaswani et al. in their paper "Attention is All You Need" published in 2017. The transformer architecture, a type of neural network, allows models to weigh different parts of a sentence. The introduction of transformer models has enabled a wide range of NLP tasks, including machine translation, text classification, sentiment analysis, and more.



You
when the Transformers robot was invented

ChatGPT
The Transformers franchise, which began in 1984, was created by Hasbro in collaboration with the Japanese toy company Takara. The concept of transforming robots, where characters can transform into vehicles, animals, and other objects, was created by Takara. The concept of transforming robots was first introduced by Takara, who had previously released a toy line called Diaclone and another line called Micromaster. Hasbro rebranded them, and launched the Transformers franchise, along with a rich backstory involving Autobots and Decepticons. The brand quickly expanded to include a television series, a wide range of merchandise, and a solidifying Transformers as a significant cultural and commercial phenomenon.



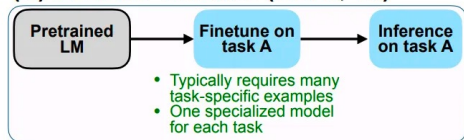
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* <https://arxiv.org/abs/2311.16452>

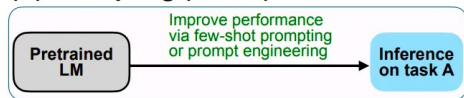
Augment Human Capabilities with AI

- Prompt Engineering
 - Zero-shot Prompting
 - Few-shot Prompting
 - Chain-of-Thought Prompting
 - Retrieval Augmented Generation (RAG)
- Instruction Tuning
- Fine Tune

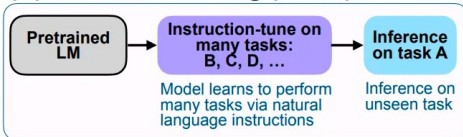
(A) Pretrain–finetune (BERT, T5)



(B) Prompting (GPT-3)



(C) Instruction tuning (FLAN)



Across our research, here's what stood out:

- **70%** of Copilot users said they were more productive, and **68%** said it improved the quality of their work.
- Overall, users were **29%** faster in a series of tasks (searching, writing, and summarizing).
- Users were able to get caught up on a missed meeting nearly **4x** faster.
- **64%** of users said Copilot helps them spend less time processing email.



Left image: <https://arxiv.org/abs/2109.01652>

Top right image: Thinking, Fast and Slow. Book by Daniel Kahneman

Prompt Library for Academic Libraries

- Sorcerers need spell books; we need prompt recipes
- Foster a collaborative space
- Collect and share effective prompts
- Assemble collections of domain-specific prompts
- Export collections to instruction datasets for tuning LLMs



Transforming Libraries for the Future



IKEA Uses AI to Transform Call Center Employees Into Interior Design Advisors

BY PYMNTS | JUNE 14, 2023



IKEA Upskilled 8,500 Employees To Boost Sales by \$1.4 Billion

Image on the right: <https://www.pymnts.com/news/retail/2023/ikea-uses-artificial-intelligence-transform-call-center-employees-into-interior-design-advisors/>