

CRITICISM

ChatGPT is not all you need. A State of the Art Review of large Generative AI models

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Abstract. During the last two years there has been a plethora of large generative models such as ChatGPT or Stable Diffusion that have been published. Concretely, these models are able to perform tasks such as being a general question and answering system or automatically creating artistic images that are revolutionizing several sectors. Consequently, the implications that these generative models have in the industry and society are enormous, as several job positions may be transformed. For example, Generative AI is capable of transforming effectively and creatively texts to images, like the DALLÉ-2 model; text to 3D images, like the Dreamfusion model; images to text, like the Flamingo model; texts to video, like the Phenaki model; texts to audio, like the AudioLM model; texts to other texts, like ChatGPT; texts to code, like the Codex model; texts to scientific texts, like the Galactica model or even create algorithms like AlphaTensor. This work consists on an attempt to describe in a concise way the main models are sectors that are affected by generative AI and to provide a taxonomy of the main generative models published recently.

Unpopular Opinion about AR-LLMs

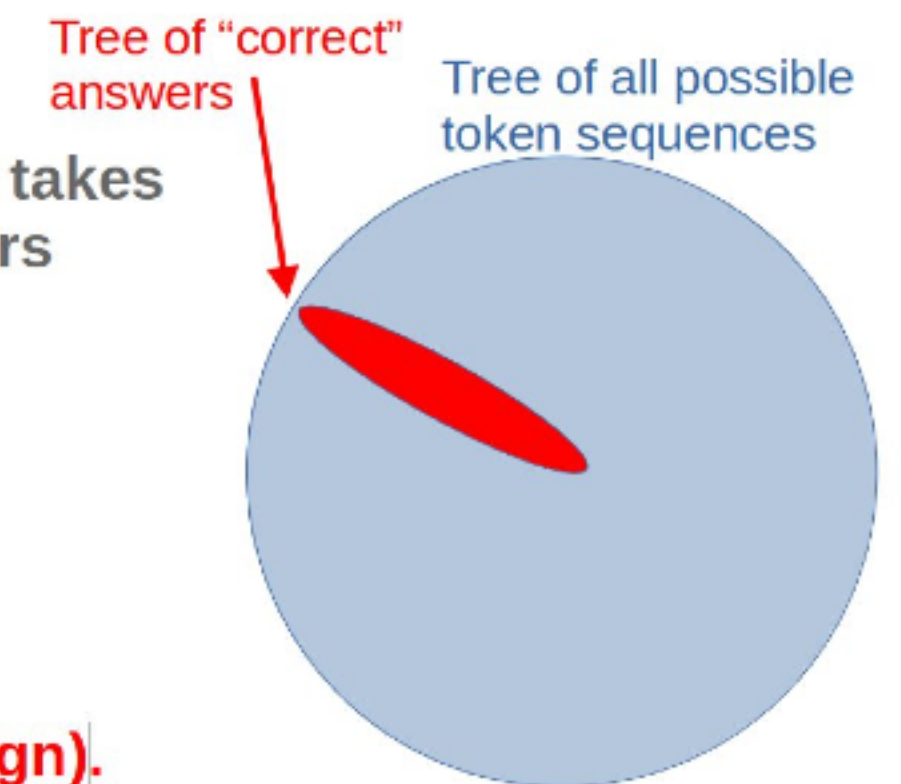
Y. LeCun

- ▶ Auto-Regressive LLMs are **doomed**.
- ▶ They cannot be made factual, non-toxic, etc.
- ▶ They are not controllable

- ▶ Probability e that any produced token takes us outside of the set of correct answers
- ▶ Probability that answer of length n is correct:

- ▶ $P(\text{correct}) = (1-e)^n$

- ▶ **This diverges exponentially.**
- ▶ **It's not fixable (without a major redesign).**



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