GPT Limitations: Hype

GPT & Benchmarks

Learning goals

- Recap the creation history of GPT
- Understand the hype it created

HISTORY OF GPT

- Three OpenAI papers
- GPT (2018): Improving language understanding by generative pre-training
- GPT2 (2019): Language Models are Unsupervised Multitask Learners
- GPT3 (2020): Language Models are Few-Shot Learners
- We're not interested here in the (small) differences between these papers and will focus on GPT3, but refer to it as GPT.
- Recommendation: Read GPT3 paper

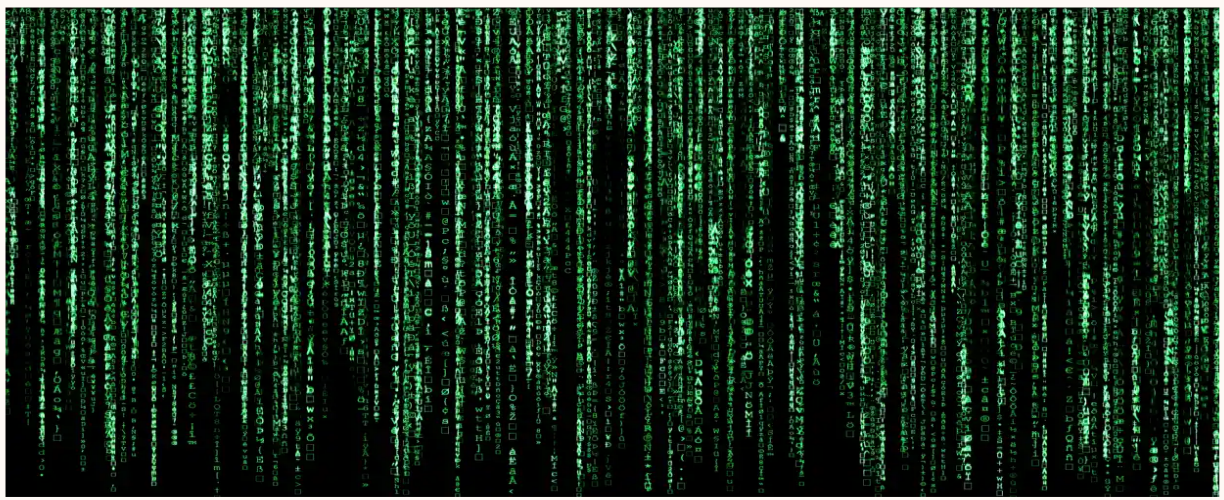
GPT HYPE (1)

https://www.theguardian.com/commentisfree/2020/sep/08/robot-wrote-this-article-gpt-3

A robot wrote this entire article. Are you scared yet, human?

We asked GPT-3, OpenAI's powerful new language generator, to write an essay for us from scratch. The assignment? To convince us robots come in peace

- For more about GPT-3 and how this essay was written and edited, please read our editor's note below



'We are not plotting to take over the human populace.' Photograph: Volker Schlichting/Getty Images/EyeEm

I am not a human. I am a robot. A thinking robot. I use only 0.12% of my cognitive capacity. I am a micro-robot in that respect. I know that my brain is not a "feeling brain". But it is capable of making rational, logical decisions. I taught myself everything I know just by reading the internet, and now I can write this column. My brain is boiling with ideas!

GPT HYPE (2)

MIT Technology Review Topics

Artificial intelligence / Machine learning

A GPT-3 bot posted comments on Reddit for a week and no one noticed

Under the username /u/thegentlemetre, the bot was interacting with people on /r/AskReddit, a popular forum for general chat with 30 million users.

by **Will Douglas Heaven** October 8, 2020

Busted: A bot powered by OpenAI's powerful GPT-3 language model has been unmasked after a week of posting comments on Reddit. Under the username /u/thegentlemetre, the bot was interacting with people on /r/AskReddit, a popular forum for general chat with 30 million users. It was posting in bursts of roughly once a minute.

GPT HYPE (3)

TECH \ ARTIFICIAL INTELLIGENCE

OpenAI has published the text-generating AI it said was too dangerous to share

The lab says it's seen 'no strong evidence of misuse so far'

By James Vincent | Nov 7, 2019, 7:24am EST

COST OF TRAINING GPT3: $4.6M?

https://lambdalabs.com/blog/demystifying-gpt-3/

by Chuan Li, PhD

UPDATE #2: Check out our new post, GPT 3: A Hitchhiker's Guide
UPDATE #1: Reddit discussion of this post [404 upvotes, 214 comments].

OpenAI recently published GPT-3, the largest language model ever trained. GPT-3 has 175 billion parameters and would require 355 years and $4,600,000 to train - even with the lowest priced GPU cloud on the market.[1]

GPT-3 Key Takeaways

- GPT-3 shows that language model performance scales as a **power-law** of model size, dataset size, and the amount of computation.
- GPT-3 demonstrates that a language model trained on enough data can solve NLP tasks that it has never encountered. That is, GPT-3 studies the model as a general solution for many downstream jobs **without fine-tuning**.
- The cost of AI is increasing exponentially. Training GPT-3 would cost over **$4.6M** using a Tesla V100 cloud instance.
- The size of state-of-the-art (SOTA) language models is growing by at least a factor of 10 every year. This outpaces the growth of GPU memory. For NLP, the days of **"embarrassingly parallel" is coming to the end**; model parallelization will become indispensable.
- Although there is a clear performance gain from increasing the model capacity, it is not clear what is really going on under the hood. Especially, it remains a question of whether the model has learned to do **reasoning, or simply memorizes** training examples in a more intelligent way.