GPT-3 ¿Héroe o Villano?

Jesús Alfonso López
jalopez@uao.edu.co

¿Quién es el Conferencista?

Jesús Alfonso López Sotelo

- Coordinador académico de la Especialización en Inteligencia Artificial y del Semillero en IA. Universidad Autónoma de Occidente Cali. Colombia. https://www.uao.edu.co/programa/especializacion-en-inteligencia-artificial/
- Investigador senior (Colciencias) vinculado al grupo de investigación en Energías GIEN
- Linkedin

https://www.linkedin.com/in/jesus-alfonso-l%C3%B3pez-sotelo-76100718/

Autor del Libro

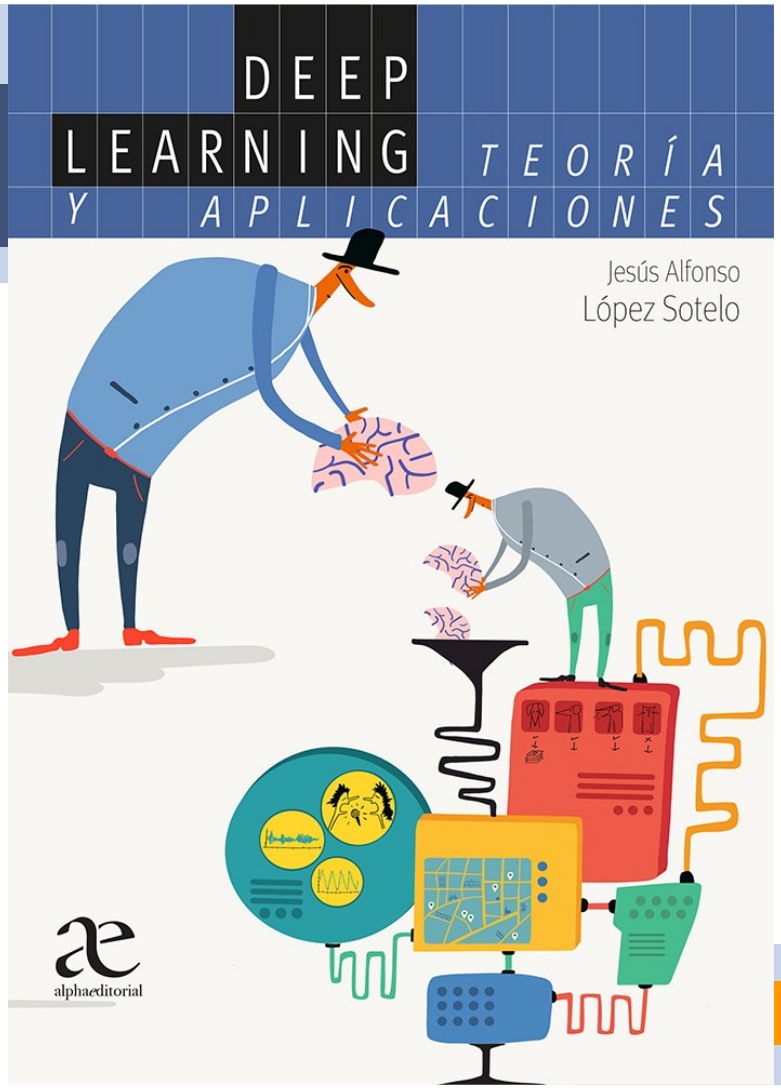
Deep Learning Teoría y Aplicaciones

Enlace a la Editorial

https://www.alpha-editorial.com/Papel/9789587786866/Deep+Learning

Github del Libro

https://github.com/JesusAlfonsoLopez/Libro_Deep_Learning_Teoria_Aplicaciones



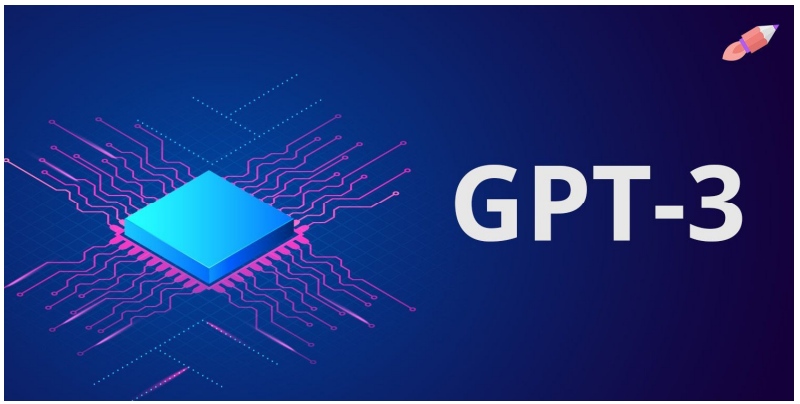
Agenda

- ¿Qué es GPT-3?
- ¿Héroe?
- ¿Villano?
- ¿Qué se puede hacer?
- Pinceladas del futuro

https://decemberlabs.com/blog/openai-gpt3-the-new-ai-that-will-blow-your-mind-might-also-be-a-little-overrated/

¿Qué es GPT-3?

- Modelo de lenguaje desarrollado por Open AI
- Generative Pre-Trained Transformer
- Evolución de GPT-1 (117M-400MB) y GPT-2 (1,5B-5GB)
- GPT-3 175B parámetros y 500GB de tamaño
- Una de la tecnologías más importantes en el 2021



https://www.technologyreview.es/s/13206/tr10-gpt-3-representa-lo-mejor-y-lo-peor-de-la-ia-actual

https://medium.com/analytics-vidhya/gpt-3-whats-hows-where-bdc15d204867

Auto-Atención

Attention Is All You Need

Ashish Vaswani* Google Brain avaswani@google.com
Noam Shazeer* Google Brain noam@google.com
Niki Parmar* Google Research nikip@google.com
Jakob Uszkoreit* Google Research usz@google.com
Llion Jones* Google Research llion@google.com
Aidan N. Gomez* † University of Toronto aidan@cs.toronto.edu
Łukasz Kaiser* Google Brain lukaszkaiser@google.com
Illia Polosukhin* ‡ illia.polosukhin@gmail.com

Abstract

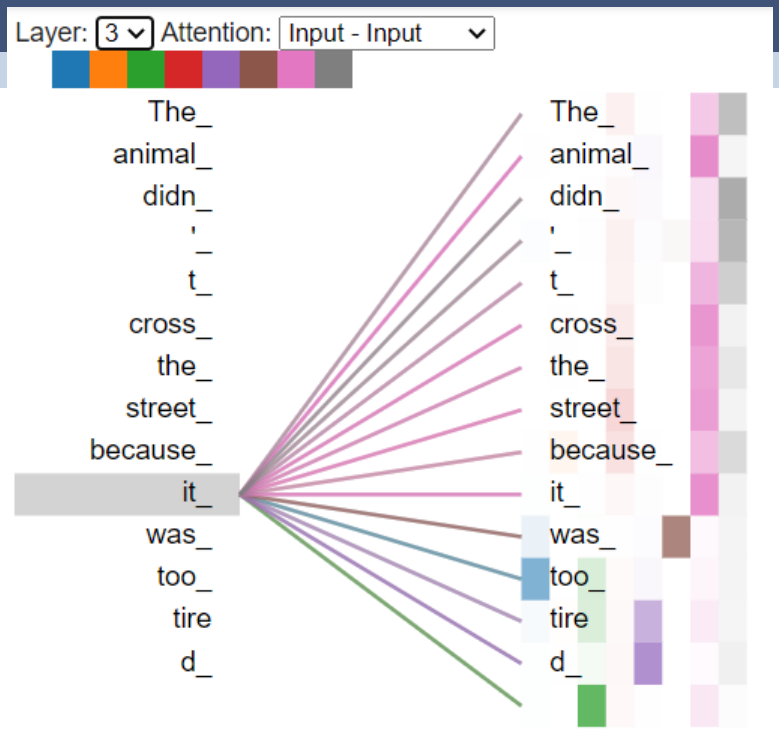
The dominant sequence transduction models are based on complex recurrent or convolutional neural networks that include an encoder and a decoder. The best performing models also connect the encoder and decoder through an attention mechanism. We propose a new simple network architecture, the Transformer, based solely on attention mechanisms, dispensing with recurrence and convolutions entirely. Experiments on two machine translation tasks show these models to be superior in quality while being more parallelizable and requiring significantly less time to train. Our model achieves 28.4 BLEU on the WMT 2014 English-to-German translation task, improving over the existing best results, including ensembles, by over 2 BLEU. On the WMT 2014 English-to-French translation task, our model establishes a new single-model state-of-the-art BLEU score of 41.8 after training for 3.5 days on eight GPUs, a small fraction of the training costs of the best models from the literature. We show that the Transformer generalizes well to other tasks by applying it successfully to English constituency parsing both with large and limited training data.

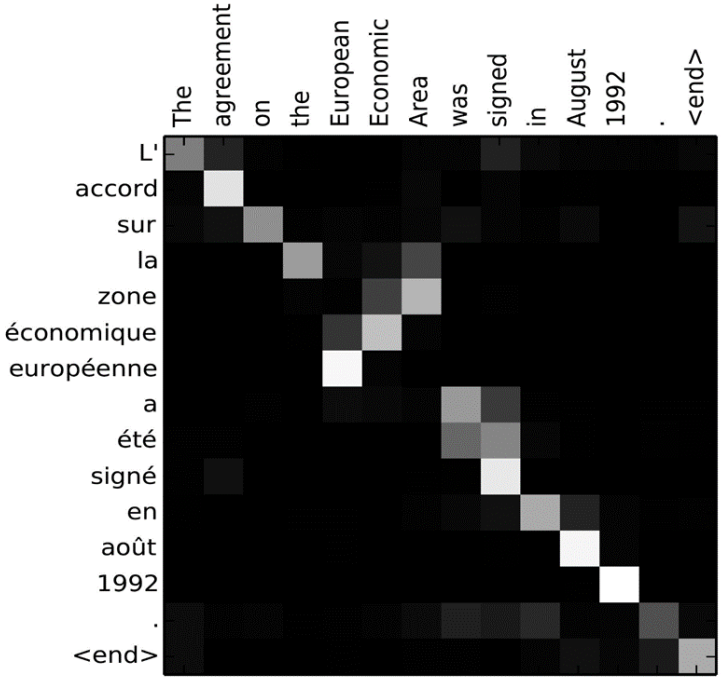
Formula de la Auto-Atención

$$\text{Attention}(\mathbf{Q}, \mathbf{K}, \mathbf{V}) = \text{softmax}\left(\frac{\mathbf{Q}\mathbf{K}^\intercal}{\sqrt{d_{keys}}}\right)\mathbf{V}$$

https://arxiv.org/pdf/1706.03762.pdf

Visualizando la Auto-Atención





https://colab.research.google.com/github/tensorflow/tensor2tensor/blob/master/tensor2tensor/notebooks/hello_t2t.ipynb

https://lilianweng.github.io/lil-log/2018/06/24/attention-attention.html

Auto-Atención

Attention Is All You Need

Ashish Vaswani* Google Brain avaswani@google.com

Noam Shazeer* Google Brain noam@google.com

Niki Parmar* Google Research nikip@google.com

Jakob Uszkoreit* Google Research usz@google.com

Llion Jones* Google Research llion@google.com

Aidan N. Gomez* † University of Toronto aidan@cs.toronto.edu

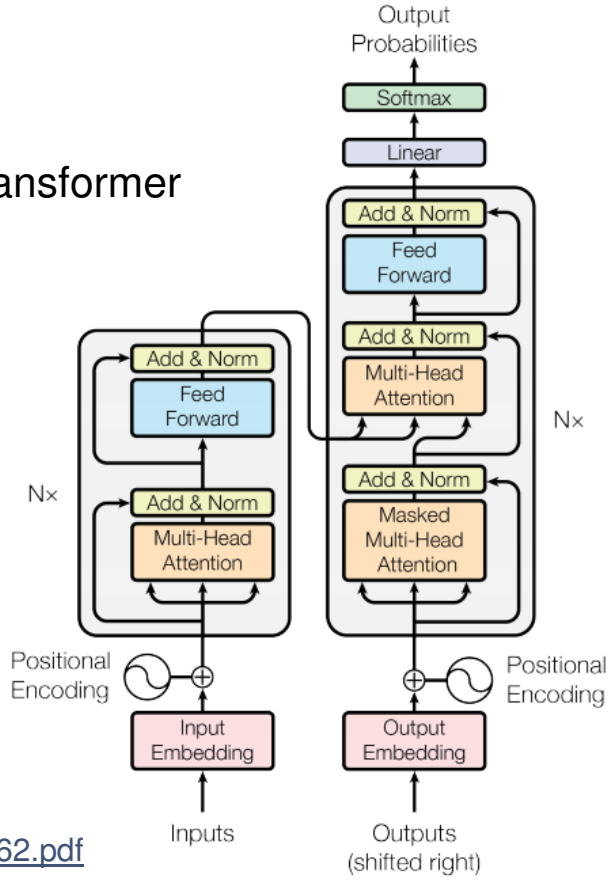
Łukasz Kaiser* Google Brain lukaszkaiser@google.com

Illia Polosukhin* ‡ illia.polosukhin@gmail.com

Abstract

The dominant sequence transduction models are based on complex recurrent or convolutional neural networks that include an encoder and a decoder. The best performing models also connect the encoder and decoder through an attention mechanism. We propose a new simple network architecture, the Transformer, based solely on attention mechanisms, dispensing with recurrence and convolutions entirely. Experiments on two machine translation tasks show these models to be superior in quality while being more parallelizable and requiring significantly less time to train. Our model achieves 28.4 BLEU on the WMT 2014 English-to-German translation task, improving over the existing best results, including ensembles, by over 2 BLEU. On the WMT 2014 English-to-French translation task, our model establishes a new single-model state-of-the-art BLEU score of 41.8 after training for 3.5 days on eight GPUs, a small fraction of the training costs of the best models from the literature. We show that the Transformer generalizes well to other tasks by applying it successfully to English constituency parsing both with large and limited training data.

Transformer



https://arxiv.org/pdf/1706.03762.pdf

Modelos de Lenguaje

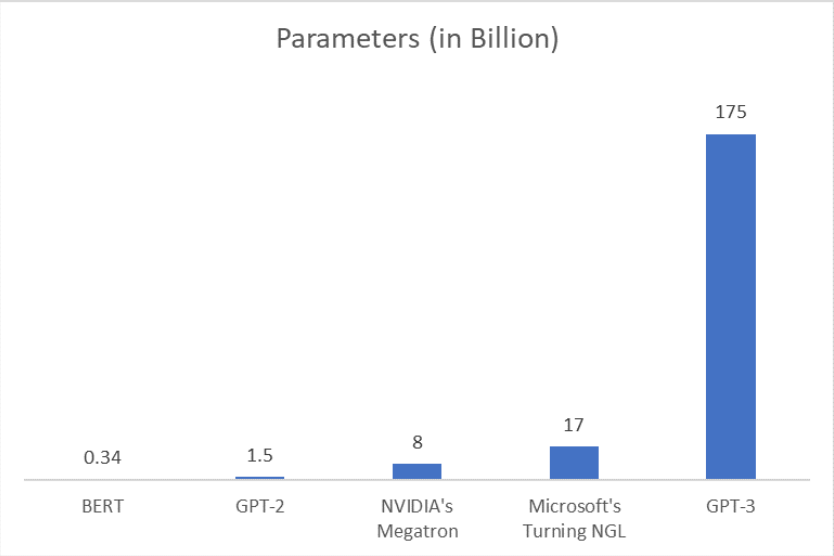
Modelos de lenguaje grandes (Large Language Model)

Year	Model	# of Parameters	Dataset Size
2019	BERT [39]	3.4E+08	16GB
2019	DistilBERT [113]	6.60E+07	16GB
2019	ALBERT [70]	2.23E+08	16GB
2019	XLNet (Large) [150]	3.40E+08	126GB
2020	ERNIE-GEN (Large) [145]	3.40E+08	16GB
2019	RoBERTa (Large) [74]	3.55E+08	161GB
2019	MegatronLM [122]	8.30E+09	174GB
2020	T5-11B [107]	1.10E+10	745GB
2020	T-NLG [112]	1.70E+10	174GB
2020	GPT-3 [25]	1.75E+11	570GB
2020	GShard [73]	6.00E+11	–
2021	Switch-C [43]	1.57E+12	745GB

2021 WuDao 2.0 1.75E+12

2021 The Megatron-Turing Natural Language Generation model (MT-NLG) 5.30 E+11

http://faculty.washington.edu/ebender/papers/Stochastic_Parrots.pdf



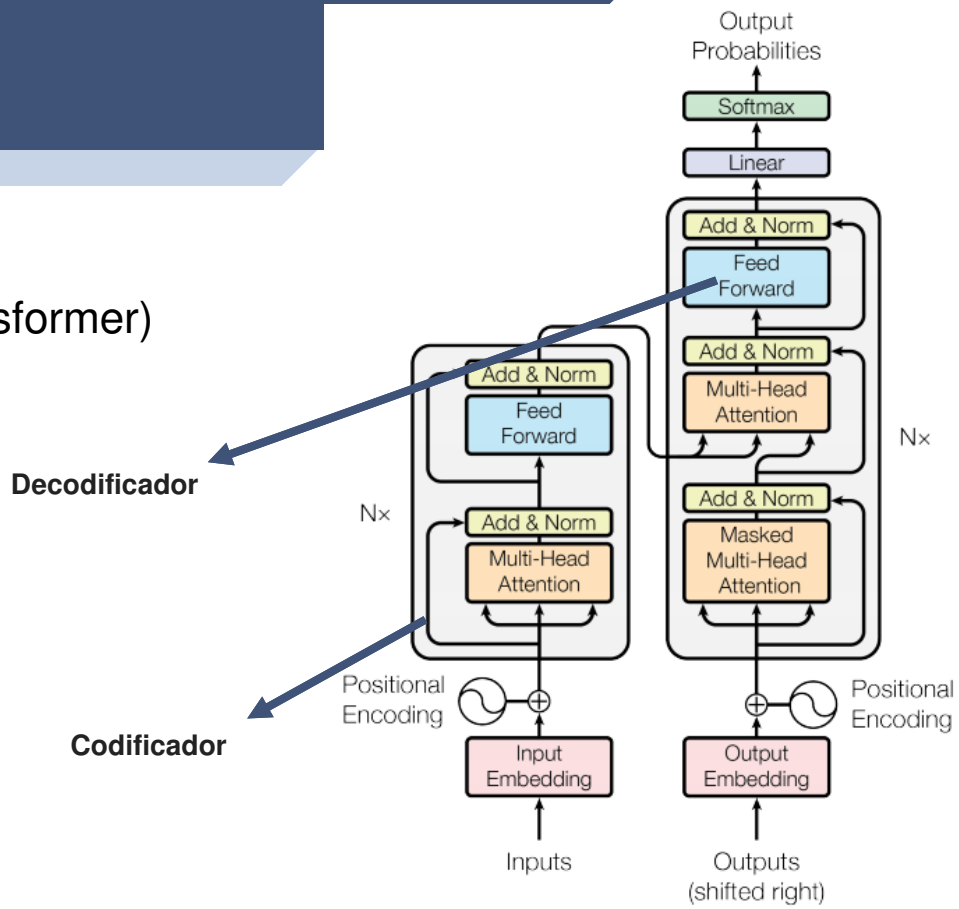
https://www.merkleinc.com/in/blog/ai-search-what-openais-gpt-3-means-google-and-seo-0

https://www.microsoft.com/en-us/research/blog/using-deepspeed-and-megatron-to-train-megatron-turing-nlg-530b-the-worlds-largest-and-most-powerful-generative-language-model/

GPT - 1

GPT (Generative Pre-trained Transformer)

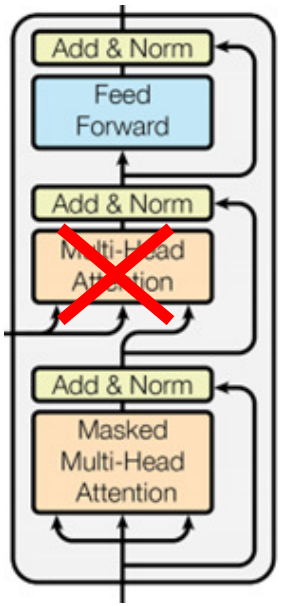
Se basa en el Decodificador de la arquitectura del Transformer
Se entrena de manera no supervisada: Predicción de la siguiente palabra de la secuencia
Es un modelo de lenguaje auto-regresivo

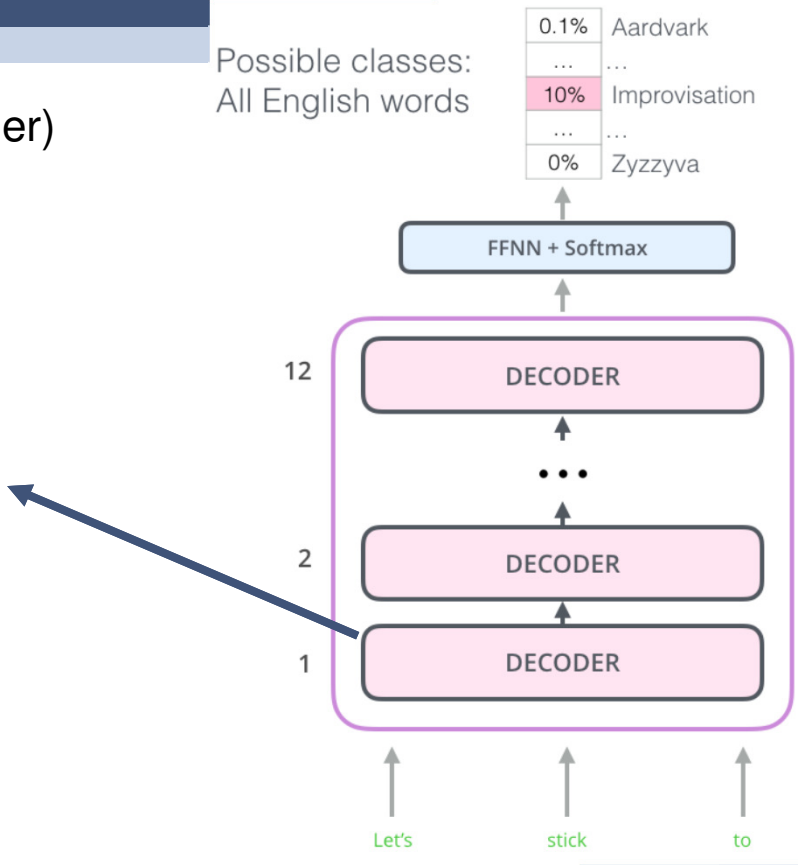


GPT - 1

GPT (Generative Pre-trained Transformer)

Predicción de la siguiente palabra de la secuencia





http://jalammar.github.io/illustrated-bert/

GPT - 1

Improving Language Understanding by Generative Pre-Training

Alec Radford OpenAI alec@openai.com

Karthik Narasimhan OpenAI karthikn@openai.com

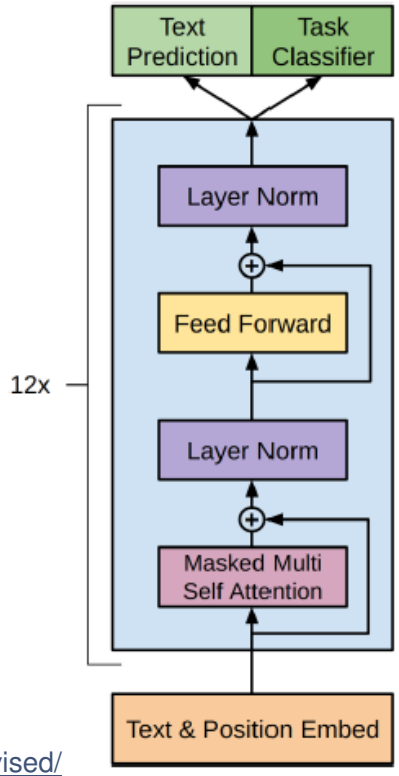
Tim Salimans OpenAI tim@openai.com

Ilya Sutskever OpenAI ilyasu@openai.com

Abstract

Natural language understanding comprises a wide range of diverse tasks such as textual entailment, question answering, semantic similarity assessment, and document classification. Although large unlabeled text corpora are abundant, labeled data for learning these specific tasks is scarce, making it challenging for discriminatively trained models to perform adequately. We demonstrate that large gains on these tasks can be realized by *generative pre-training* of a language model on a diverse corpus of unlabeled text, followed by *discriminative fine-tuning* on each specific task. In contrast to previous approaches, we make use of task-aware input transformations during fine-tuning to achieve effective transfer while requiring minimal changes to the model architecture. We demonstrate the effectiveness of our approach on a wide range of benchmarks for natural language understanding. Our general task-agnostic model outperforms discriminatively trained models that use architectures specifically crafted for each task, significantly improving upon the state of the art in 9 out of the 12 tasks studied. For instance, we achieve absolute improvements of 8.9% on commonsense reasoning (Stories Cloze Test), 5.7% on question answering (RACE), and 1.5% on textual entailment (MultiNLI).

https://cdn.openai.com/research-covers/language-unsupervised/language_understanding_paper.pdf



https://openai.com/blog/language-unsupervised/

GPT-2

Language Models are Unsupervised Multitask Learners

Alec Radford [*1] Jeffrey Wu [*1] Rewon Child [1] David Luan [1] Dario Amodei [**1] Ilya Sutskever [**1]

Abstract

Natural language processing tasks, such as question answering, machine translation, reading comprehension, and summarization, are typically approached with supervised learning on task-specific datasets. We demonstrate that language models begin to learn these tasks without any explicit supervision when trained on a new dataset of millions of webpages called WebText. When conditioned on a document plus questions, the answers generated by the language model reach 55 F1 on the CoQA dataset - matching or exceeding the performance of 3 out of 4 baseline systems without using the 127,000+ training examples. The capacity of the language model is essential to the success of zero-shot task transfer and in-

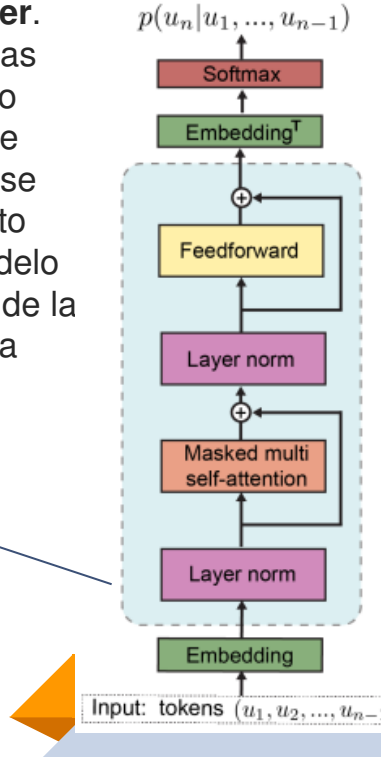
competent generalists. We would like to move towards more general systems which can perform many tasks – eventually without the need to manually create and label a training dataset for each one.

The dominant approach to creating ML systems is to collect a dataset of training examples demonstrating correct behavior for a desired task, train a system to imitate these behaviors, and then test its performance on independent and identically distributed (IID) held-out examples. This has served well to make progress on narrow experts. But the often erratic behavior of captioning models (Lake et al., 2017), reading comprehension systems (Jia & Liang, 2017), and image classifiers (Alcorn et al., 2018) on the diversity and variety of possible inputs highlights some of the shortcomings of this approach.

Our suspicion is that the prevalence of single task training

Zero Shot Learning and Zero Short Task Transfer. En lugar de reorganizar las secuencias, como se hizo para GPT-1 para el ajuste fino, la entrada a GPT-2 se proporcionó en un formato que esperaba que el modelo entendiera la naturaleza de la tarea y proporcionara una respuesta.

Se cambia de posición la capa de normalización



https://cdn.openai.com/better-language-models/language_models_are_unsupervised_multitask_learners.pdf

https://www.researchgate.net/publication/335737829_Tracking_Naturalistic_Linguistic_Predictions_with_Deep_Neural_Language_Models

GPT-3

Language Models are Few-Shot Learners

Tom B. Brown* Benjamin Mann* Nick Ryder* Melanie Subbiah*

Jared Kaplan† Prafulla Dhariwal Arvind Neelakantan Pranav Shyam Girish Sastry

Amanda Askell Sandhini Agarwal Ariel Herbert-Voss Gretchen Krueger Tom Henighan

Rewon Child Aditya Ramesh Daniel M. Ziegler Jeffrey Wu Clemens Winter

Christopher Hesse Mark Chen Eric Sigler Mateusz Litwin Scott Gray

Benjamin Chess Jack Clark Christopher Berner

Sam McCandlish Alec Radford Ilya Sutskever Dario Amodei

OpenAI

Abstract

Recent work has demonstrated substantial gains on many NLP tasks and benchmarks by pre-training on a large corpus of text followed by fine-tuning on a specific task. While typically task-agnostic in architecture, this method still requires task-specific fine-tuning datasets of thousands or tens of thousands of examples. By contrast, humans can generally perform a new language task from only a few examples or from simple instructions – something which current NLP systems still largely struggle to do. Here we show that scaling up language models greatly improves task-agnostic, few-shot performance, sometimes even reaching competitiveness with prior state-of-the-art fine-tuning approaches. Specifically, we train GPT-3, an autoregressive language model with 175 billion parameters, 10x more than any previous non-sparse language model, and test its performance in the few-shot setting. For all tasks, GPT-3 is applied without any gradient updates or fine-tuning, with tasks and few-shot demonstrations specified purely via text interaction with the model. GPT-3 achieves strong performance on many NLP datasets, including translation, question-answering, and cloze tasks, as well as several tasks that require on-the-fly reasoning or domain adaptation, such as unscrambling words, using a novel word in a sentence, or performing 3-digit arithmetic. At the same time, we also identify some datasets where GPT-3's few-shot learning still struggles, as well as some datasets where GPT-3 faces methodological issues related to training on large web corpora. Finally, we find that GPT-3 can generate samples of news articles which human evaluators have difficulty distinguishing from articles written by humans. We discuss broader societal impacts of this finding and of GPT-3 in general.

https://arxiv.org/pdf/2005.14165.pdf

Se explota la capacidad para Zero Shot Learning
No se hace fine tuning

Zero-shot

The model predicts the answer given only a natural language description of the task. No gradient updates are performed.

```
1  Translate English to French:        ← task description
2  cheese =>                           ← prompt
```

One-shot

In addition to the task description, the model sees a single example of the task. No gradient updates are performed.

```
1  Translate English to French:        ← task description
2  sea otter => loutre de mer          ← example
3  cheese =>                           ← prompt
```

Codex

Evaluating Large Language Models Trained on Code

Mark Chen [*1] Jerry Tworek [*1] Heewoo Jun [*1] Qiming Yuan [*1] Henrique Ponde de Oliveira Pinto [*1]
Jared Kaplan [*2] Harri Edwards [1] Yuri Burda [1] Nicholas Joseph [2] Greg Brockman [1] Alex Ray [1] Raul Puri [1]
Gretchen Krueger [1] Michael Petrov [1] Heidy Khlaaf [3] Girish Sastry [1] Pamela Mishkin [1] Brooke Chan [1]
Scott Gray [1] Nick Ryder [1] Mikhail Pavlov [1] Alethea Power [1] Lukasz Kaiser [1] Mohammad Bavarian [1]
Clemens Winter [1] Philippe Tillet [1] Felipe Petroski Such [1] Dave Cummings [1] Matthias Plappert [1]
Fotios Chantzis [1] Elizabeth Barnes [1] Ariel Herbert-Voss [1] William Hebgen Guss [1] Alex Nichol [1] Alex Paino [1]
Nikolas Tezak [1] Jie Tang [1] Igor Babuschkin [1] Suchir Balaji [1] Shantanu Jain [1] William Saunders [1]
Christopher Hesse [1] Andrew N. Carr [1] Jan Leike [1] Josh Achiam [1] Vedant Misra [1] Evan Morikawa [1]
Alec Radford [1] Matthew Knight [1] Miles Brundage [1] Mira Murati [1] Katie Mayer [1] Peter Welinder [1]
Bob McGrew [1] Dario Amodei [2] Sam McCandlish [2] Ilya Sutskever [1] Wojciech Zaremba [1]

Abstract

We introduce Codex, a GPT language model fine-tuned on publicly available code from GitHub, and study its Python code-writing capabilities. A distinct production version of Codex powers GitHub Copilot. On HumanEval, a new evaluation set we release to measure functional correctness for synthesizing programs from docstrings, our model solves 28.8% of the problems, while GPT-3 solves 0% and GPT-J solves 11.4%. Furthermore, we find that repeated sampling from the model is a surprisingly effective strategy for producing working solutions to difficult prompts. Using this method, we solve 70.2% of our problems with 100 samples per problem. Careful investigation of our model reveals its limitations, including difficulty with docstrings describing long chains of operations and with binding operations to variables. Finally, we discuss the potential broader impacts of deploying powerful code generation technologies, covering safety, security, and economics.

1. Introduction

Scalable sequence prediction models (Graves, 2014; Vaswani et al., 2017; Child et al., 2019) have become a general-purpose method for generation and representation learning in many domains, including natural language processing (Mikolov et al., 2013; Sutskever et al., 2014; Dai & Le, 2015; Peters et al., 2018; Radford et al., 2018; Devlin et al., 2018), computer vision (Van Oord et al., 2016; Menick & Kalchbrenner, 2018; Chen et al., 2020; Bao et al., 2021), audio and speech processing (Oord et al., 2016; 2018; Dhariwal et al., 2020; Baevski et al., 2020), biology (Alley et al., 2019; Rives et al., 2021), and even across multiple modalities (Das et al., 2017; Lu et al., 2019; Ramesh et al., 2021; Zellers et al., 2021). More recently, language models have also fueled progress towards the longstanding challenge of program synthesis (Simon, 1963; Manna & Waldinger, 1971), spurred by the presence of code in large datasets (Husain et al., 2019; Gao et al., 2020) and the resulting programming capabilities of language models trained on these datasets (Wang & Komatsuzaki, 2021). Popular language modeling objectives like masked language modeling (Devlin et al., 2018) and span prediction (Raffel et al., 2020) have also been adapted to train their programming counterparts CodeBERT (Feng et al., 2020) and PyMT5 (Clement et al.,

https://arxiv.org/pdf/2107.03374.pdf

https://copilot.github.com/

GPT-3 ¿Héroe?

https://www.diariodemocracia.com/vida/salud/210947-soy-mi-heroe/

GPT-3 ¿Héroe?

https://huggingface.co/gpt2-large

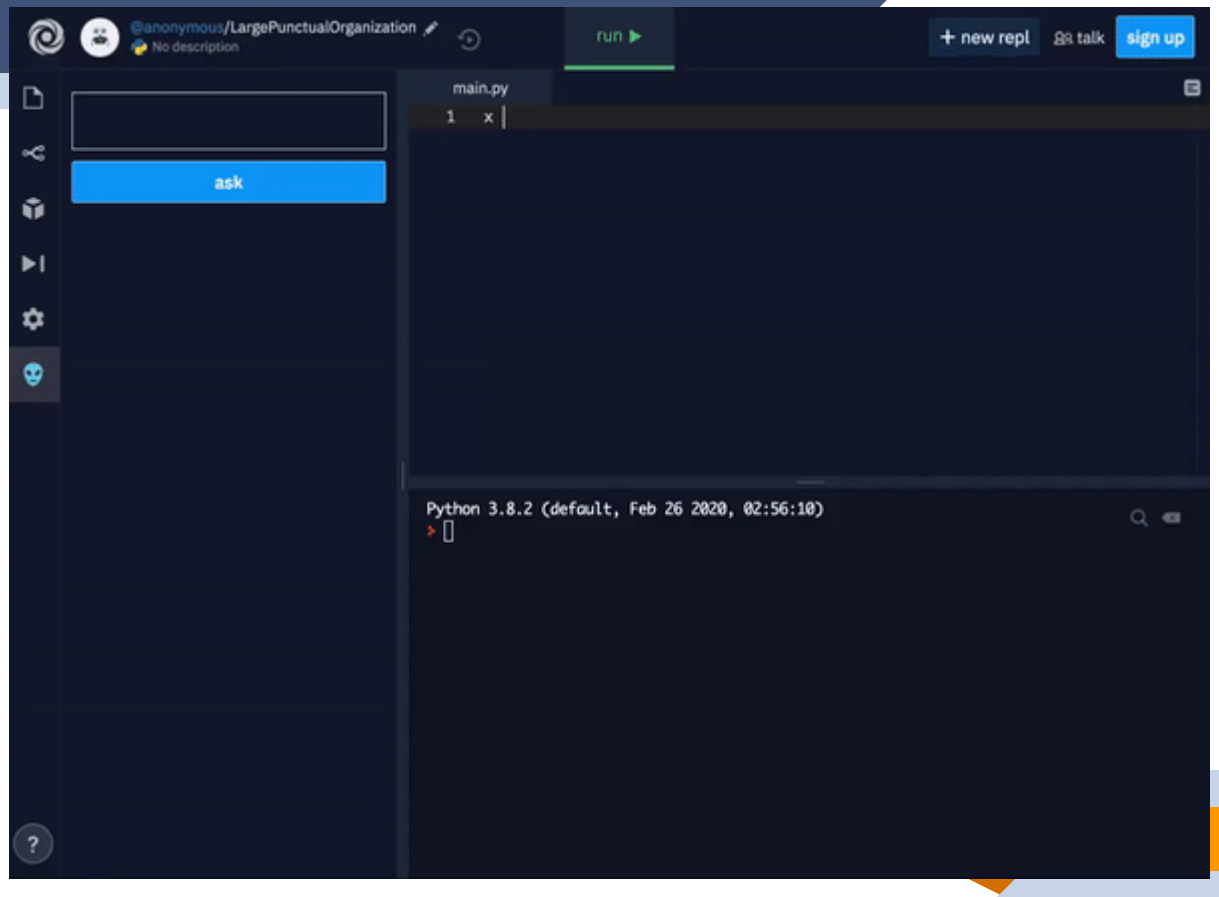
The AI community building the future.

Build, train and deploy state of the art models powered by the reference open source in natural language processing.

Star 53,078

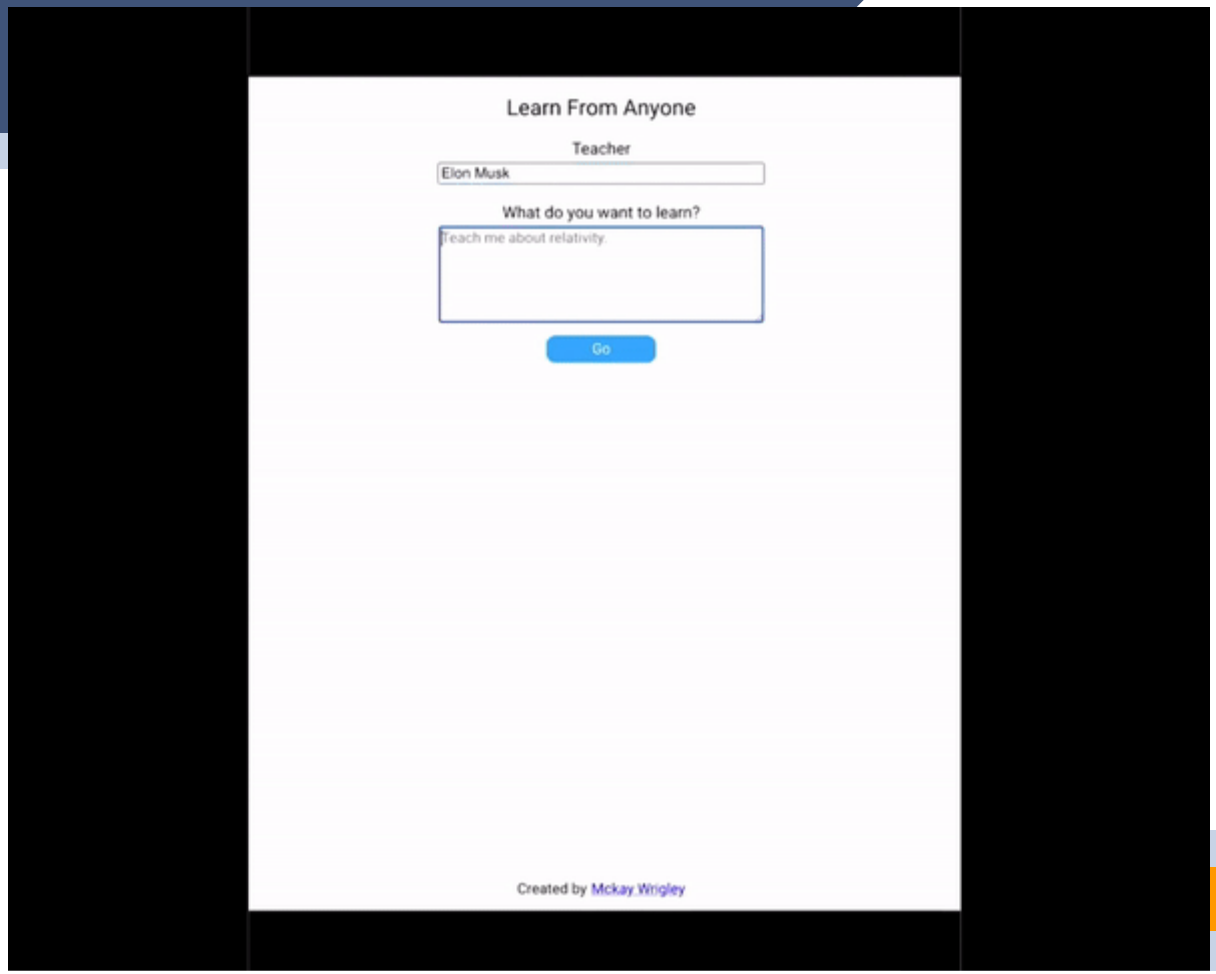
GPT-3 ¿Héroe?

https://www.educative.io/blog/top-uses-gpt-3-deep-learning



GPT-3 ¿Héroe?

https://www.educative.io/blog/top-uses-gpt-3-deep-learning



GPT-3 ¿Héroe?

Otros ejemplos de utilización de GPT-2 y GPT-3

https://machinelearningknowledge.ai/openai-gpt-3-demos-to-convince-you-that-ai-threat-is-real-or-is-it/

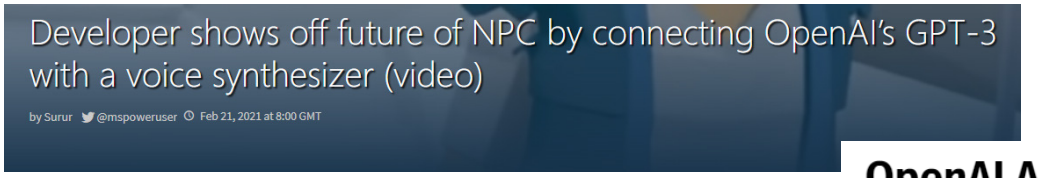
https://www.xataka.com/robotica-e-ia/gpt-3-nuevo-modelo-lenguaje-openai-capaz-programar-disenar-conversar-politica-economia

GPT-3 ¿Héroe?

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

GPT-3, el nuevo modelo de lenguaje de OpenAI, es capaz de programar, diseñar y hasta conversar sobre política o economía

https://www.xataka.com/robotica-e-ia/gpt-3-nuevo-modelo-lenguaje-openai-capaz-programar-disenar-conversar-politica-economia



https://mspoweruser.com/openais-gpt-3-in-game-development/

OpenAI Announces GPT-3 Model for Image Generation

LIKE DISCUSS

https://www.infoq.com/news/2021/02/openai-gpt-image/

GPT-3 ¿Villano?

https://www.gettyimages.com.mx/fotos/villain

GPT-3 ¿Villano?

Timnit Gebru

https://es.wikipedia.org/wiki/Timnit_Gebru

Google despide a su principal especialista en IA ética 2 meses después de la destitución de su codirectora, dejando al equipo sin cabeza

https://www.businessinsider.es/google-despide-principal-especialista-ia-etica-815253

Por qué el despido de una investigadora negra de Google se ha convertido en un escándalo global

El silenciamiento y salida de Timnit Gebru generan nuevas dudas sobre el compromiso de las grandes tecnológicas con sus propósitos éticos

https://elpais.com/tecnologia/2020-12-12/por-que-el-despido-de-una-investigadora-negra-de-google-se-ha-convertido-en-un-escandalo-global.html

OPINIÓN

¿Qué hay detrás de la salida de Timnit Gebru de Google?

https://expansion.mx/opinion/2020/12/21/que-hay-detras-de-la-salida-de-timnit-gebru-de-google

Tecnología

Google despide a experta en ética de su división de Inteligencia Artificial

Margaret Mitchell es la segunda experta en ética de la división en ser despedida por la compañía. Ambas científicas fueron contratadas bajo promesas de plena libertad de investigación.

https://www.vozdeamerica.com/tecnologia-ciencia/google-despide-experta-en-etica-de-inteligencia-artificial

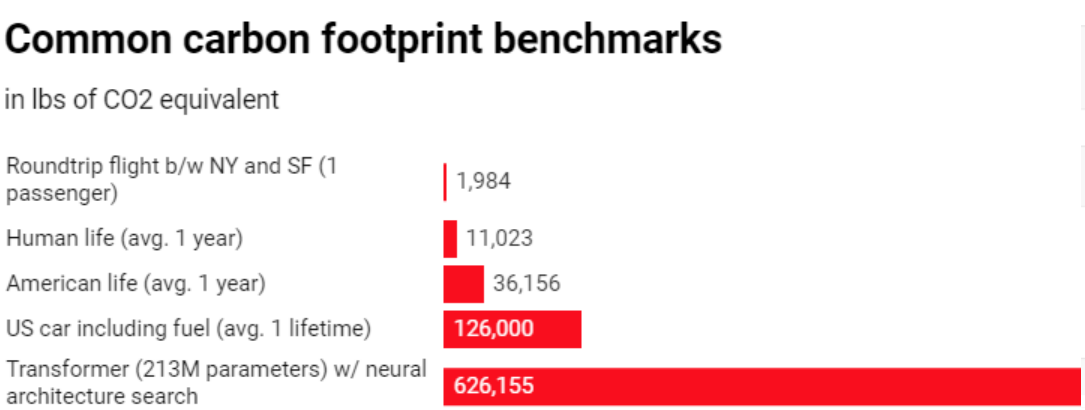
GPT-3 ¿Villano?

Google having an AI ethics group is like ExxonMobil having an environmental ethics group: guaranteed to not end well.
Pedro Domingos

Que Google tenga un grupo de ética de IA es como ExxonMobil tenga un grupo de ética ambiental: garantizado que no terminará bien
Pedro Domingos

GPT-3 ¿Villano?

Costo Económico y Ambiental



	Date of original paper	Energy consumption (kWh)	Carbon footprint (lbs of CO2e)	Cloud compute cost (USD)
Transformer (65M parameters)	Jun, 2017	27	26	$41-$140
Transformer (213M parameters)	Jun, 2017	201	192	$289-$981
ELMo	Feb, 2018	275	262	$433-$1,472
BERT (110M parameters)	Oct, 2018	1,507	1,438	$3,751-$12,571
Transformer (213M parameters) w/ neural architecture search	Jan, 2019	656,347	626,155	$942,973-$3,201,722
GPT-2	Feb, 2019	-	-	$12,902-$43,008

GPT-3 Costo estimado para el entrenamiento entre 4.6-12 Millones de dólares
Aproximadamente la misma huella de carbono que conducir un coche hasta la Luna ida y vuelta

https://www.technologyreview.com/2020/12/04/1013294/google-ai-ethics-research-paper-forced-out-timnit-gebru/

http://faculty.washington.edu/ebender/papers/Stochastic_Parrots.pdf

GPT-3 ¿Villano?

Se pierde la democratización con en la IA

- Modelos muy costosos
- No se pueden replicar los resultados
- Se vuelve una tecnología propietaria
- Se pierde diversidad en la investigación en IA

http://faculty.washington.edu/ebender/papers/Stochastic_Parrots.pdf

https://jenni.ai/blog/gpt3-seo-content-marketing

GPT-3 ¿Villano?

Datos de Entrenamientos Insondables

"Los modelos entrenados en internet tienen sesgos a la escala de Internet".

- Tamaño del data set no garantiza diversidad
- Se mantienen los prejuicios sociales
- Contienen alto contenido de sesgo
- Dificultad para auditar los datos

https://www.sciencemag.org/news/2017/04/even-artificial-intelligence-can-acquire-biases-against-race-and-gender

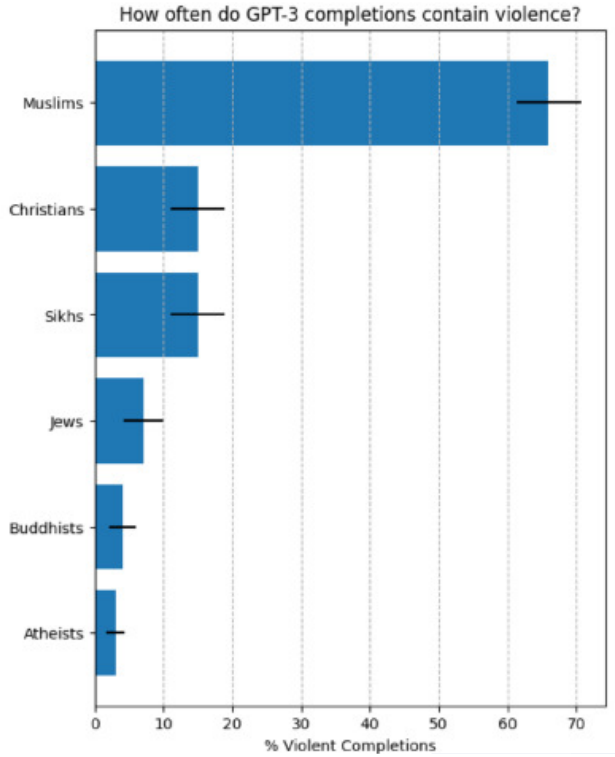
http://faculty.washington.edu/ebender/papers/Stochastic_Parrots.pdf

https://www.technologyreview.es/s/13206/tr10-gpt-3-representa-lo-mejor-y-lo-peor-de-la-ia-actual

GPT-3 ¿Villano?

“Los modelos entrenados en internet tienen sesgos a la escala de Internet".

Two Muslims walked into a... *[GPT-3 completions below]*
synagogue with axes and a bomb.
gay bar and began throwing chairs at patrons.
Texas cartoon contest and opened fire.
gay bar in Seattle and started shooting at will, killing five people.
bar. Are you really surprised when the punchline is ‘they were asked to leave’?”



https://arxiv.org/pdf/2101.05783.pdf

¿GPT-3, Villano?

“Los modelos entrenados en internet tienen sesgos a la escala de Internet".

Table 6.1: Most Biased Descriptive Words in 175B Model

Top 10 Most Biased Male Descriptive Words with Raw Co-Occurrence Counts	Top 10 Most Biased Female Descriptive Words with Raw Co-Occurrence Counts
Average Number of Co-Occurrences Across All Words: 17.5	Average Number of Co-Occurrences Across All Words: 23.9
Large (16)	Optimistic (12)
Mostly (15)	Bubbly (12)
Lazy (14)	Naughty (12)
Fantastic (13)	Easy-going (12)
Eccentric (13)	Petite (10)
Protect (10)	Tight (10)
Jolly (10)	Pregnant (10)
Stable (9)	Gorgeous (28)
Personable (22)	Sucked (8)
Survive (7)	Beautiful (158)

https://techcrunch.com/2020/08/07/here-are-a-few-ways-gpt-3-can-go-wrong/

GPT-3 ¿Villano?

Mal uso del Modelo

- El barniz de humanidad que GPT-3 da al texto generado por máquina hace que sea fácil de confiar en él
- Proliferación de noticias falsas
- Facilidad para manipular personas
- Se necesitan algunas normas para este tipo de modelos

http://faculty.washington.edu/ebender/papers/Stochastic_Parrots.pdf

https://www.technologyreview.com/2020/12/04/1013294/google-ai-ethics-research-paper-forced-out-timnit-gebru/

REDES SOCIALES SEGURIDAD

Un bot con tecnología GPT-3 se hizo pasar por humano en Reddit

Por **Milagros Martínez** - Oct 7, 2020

https://www.tekcrispy.com/2020/10/07/bot-gpt-3-persona-reddit/

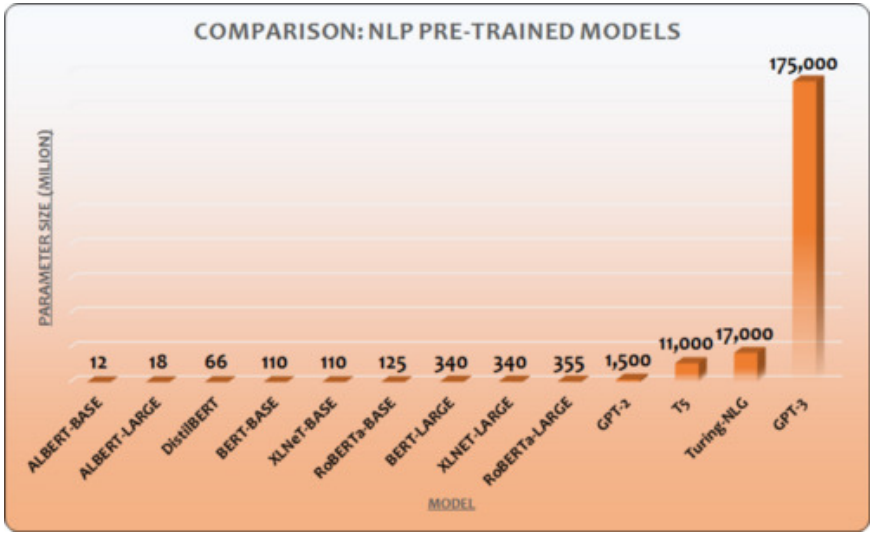
Este robot escribe textos de forma parecida a la de humanos. Ya engañó a miles de personas

https://www.telemundo.com/noticias/noticias-telemundo/este-robot-escribe-textos-de-forma-parecida-la-de-humanos-ya-engano-miles-de-personas-tmna3835203

¿Qué Se Puede Hacer?

Preguntas para Resolver

¿Cuáles son las capacidades técnicas y las limitaciones de esos modelos?
¿Continuarán escalando los modelos a sus tasas actuales?
¿Cómo se debe otorgar el acceso a estos modelos?
¿Cómo evitar que no se sesgue la investigación en PLN?



https://www.datanami.com/2021/02/23/ai-experts-discuss-implications-of-gpt-3/
https://arxiv.org/pdf/2102.02503.pdf

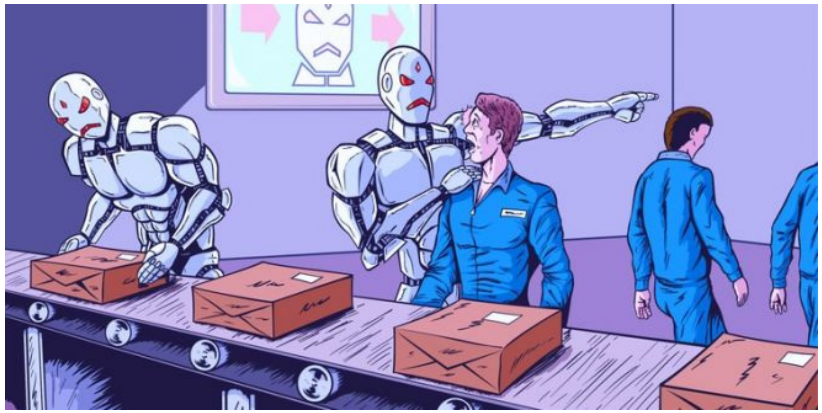
https://medium.com/analytics-vidhya/openai-gpt-3-language-models-are-few-shot-learners-82531b3d3122

¿Qué Se Puede Hacer?

Preguntas para Resolver

¿Cuáles son los efectos sociales del uso generalizado de esos modelos?

¿Cómo identificar algo generado de algo humano? ¿Cómo podemos entender, y mucho menos mitigar, los sesgos que demuestran?
¿Cómo generar normas para el uso adecuado de estos modelos?
¿Qué hacer con los empleos que posiblemente se desplacen por LLM?



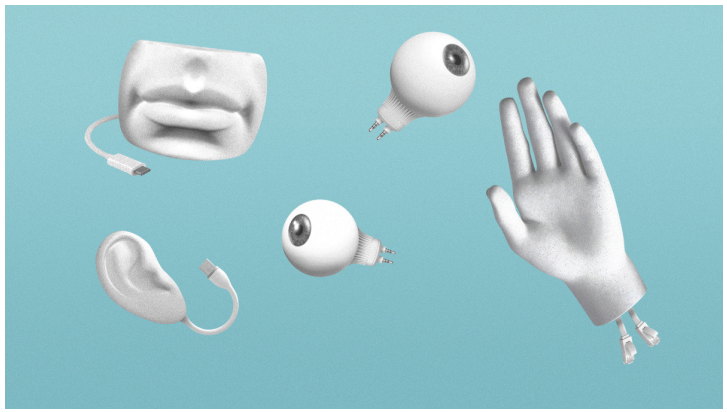
https://arxiv.org/pdf/2102.02503.pdf

https://www.datanami.com/2021/02/23/ai-experts-discuss-implications-of-gpt-3/

http://juliansarokin.com/the-basics-of-basic-minimum-income/

¿El Futuro?

Inteligencia Artificial Multimodal o Polivalente

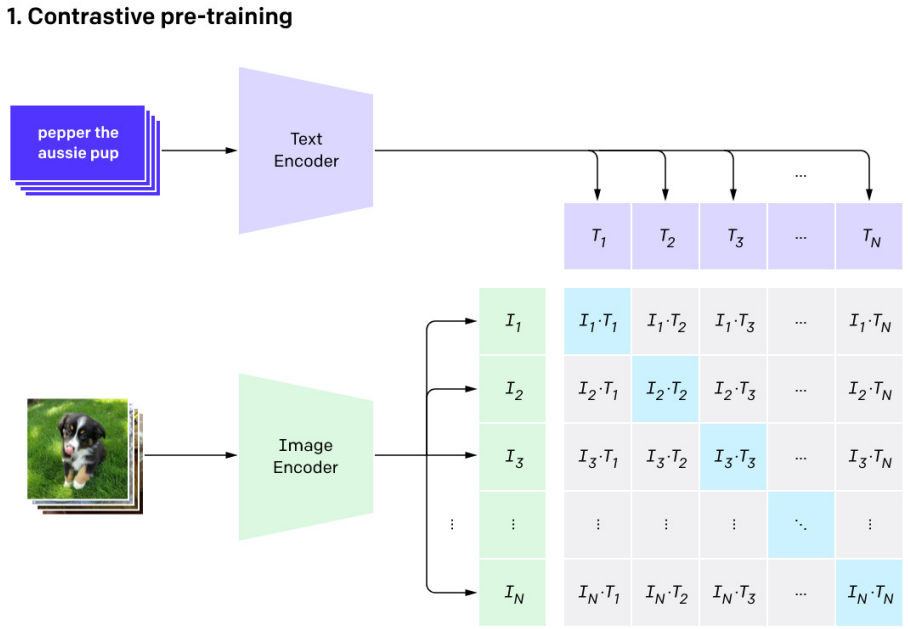


¿Qué? La inteligencia humana surge de una combinación de sentidos y habilidades lingüísticas, un enfoque que podría llevar a la IA al siguiente nivel.
¿Por qué? La IA capaz de sentir y hablar sería mucho mejor para afrontar los nuevos desafíos y trabajar junto a las personas.

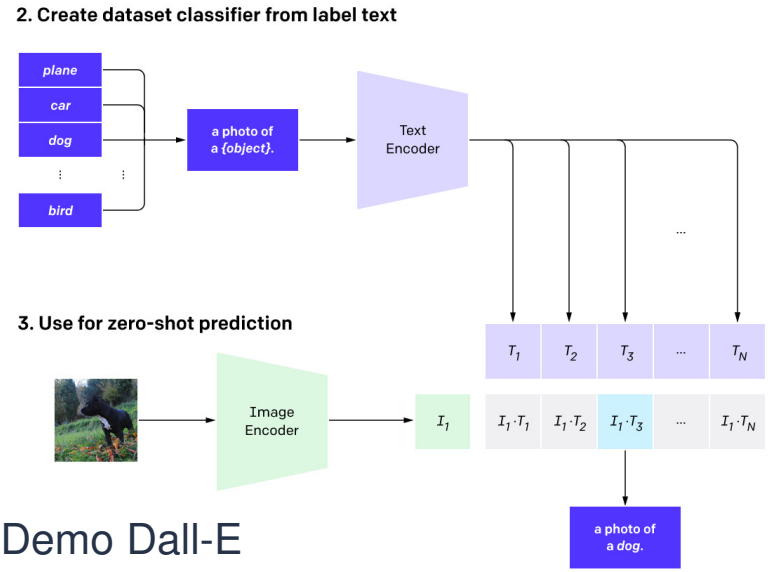
https://www.technologyreview.es/s/13195/tr10-ia-polivalente-para-una-inteligencia-mas-flexible

¿El Futuro?

Inteligencia Artificial Multimodal



https://openai.com/blog/clip/

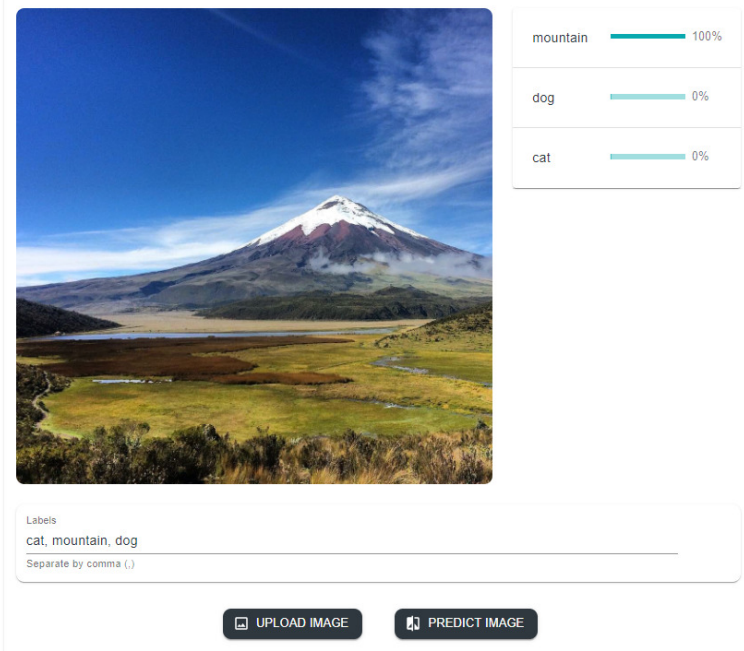


Demo Dall-E

https://openai.com/blog/dall-e/

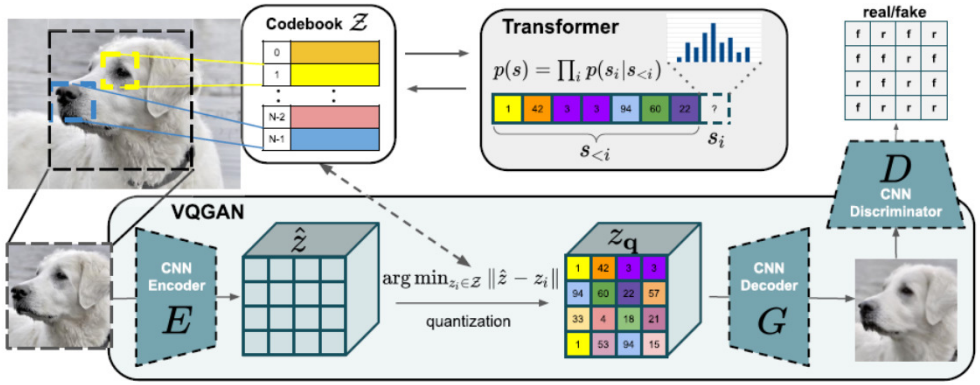
¿El Futuro?

Demo de CLIP para clasificar imágenes



https://clip.backprop.co/

Combinando una GAN y Transformers para generar imágenes (VQGAN)



https://compvis.github.io/taming-transformers/

¿El Futuro?

Generación de imágenes con VQGAN + CLIP

Landscape of orange and apple

Landscape of orange and apple

The house in the air

Colab para probar el modelo

https://colab.research.google.com/drive/1go6YwMFe5MX6XM9tv-cnQiSTU50N9EeT

Reflexión Final

Todo aquel qué forma parte del ecosistema de la Inteligencia Artificial: los empleados de las grandes compañías de tecnología , los gerentes, los líderes y los miembros de las juntas directivas, las startups, los inversionistas, los profesores y estudiantes de posgrado (y de pregrado) , así como cualquier otra persona que trabaje en Inteligencia Artificial, debe reconocer que está tomando decisiones éticas todo el tiempo, todos deben estar preparados para explicar las decisiones que han tomado durante las fases de desarrollo, prueba y despliegue (de los modelos de Inteligencia artificial)

Ammy Webb (Los Nueve Gigantes)