

XVI JORNADAS ODOO
VALENCIA

Organizan:



IA GENERATIVA. LA NUEVA ERA DE LA INTELIGENCIA ARTIFICIAL. ¿OPORTUNIDAD O AMENAZA?

Raúl Hussein – Instituto Tecnológico de Informática (ITI)

¿Nueva era de la IA?



The Past:

Traditional AI

Humans are good at analyzing things.

Machines are even better.

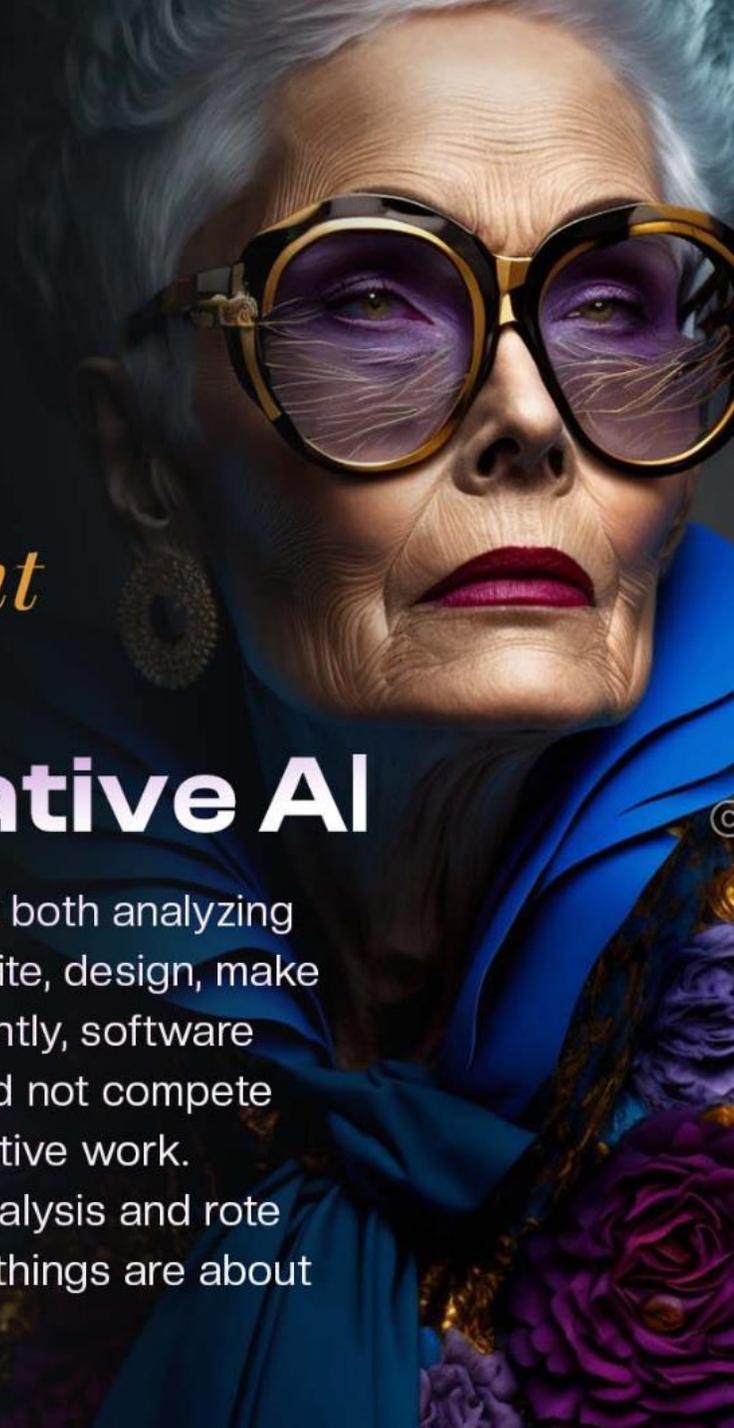
They can analyze a set of data and find patterns in it for multitude of use cases, whether it's fraud or spam detection, forecasting the ETA of your delivery or predicting which TikTok video to show you next.



*The Present
& Future:*

Generative AI

Humans are good at both analyzing and creating. We write, design, make and code. Until recently, software and computers could not compete with humans at creative work. They only did the analysis and rote cognitive labor. But things are about to change!



 **Best Dalle2 Pics**
@Dalle2Pics · [Follow](#)

Photo of hip hop cow in a denim jacket recording a hit single in the studio [#dalle2](#) [#dalle](#)



11:41 AM · May 17, 2022

 [Read the full conversation on Twitter](#)

 281  Reply  Share

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 **Genel Jumalon**
@GenelJumalon · [Seguir](#)

TL;DR — Someone entered an art competition with an AI-generated piece and won the first prize.

Yeah that's pretty fucking shitty.

announcement about my personal project I've made using Midjourney. I have been exploring a special prompt that I will be publishing at a later date, I have created 100s of images using it, and after many weeks of fine tuning and curating my gens, I chose my top 3 and had them printed on canvas after upscaling with Gigapixel A.I. I entered into the Colorado State Fair fine arts competition (digital arts category). I won first place. Here are the results. I've set out to make a statement using Midjourney in a competitive manner and wow! I could not be more excited about having won with my favorite piece: "Theatre d'Opera Spatial"



6:29 p. m. · 30 ago. 2022

 [Leer toda la conversación en Twitter](#)

 89,9 mil  Responder  Compartir

[Leer 1,9 mil respuestas](#)





```
sentiment.ts  write_sql.go  parse_expenses.py  addresses.rb

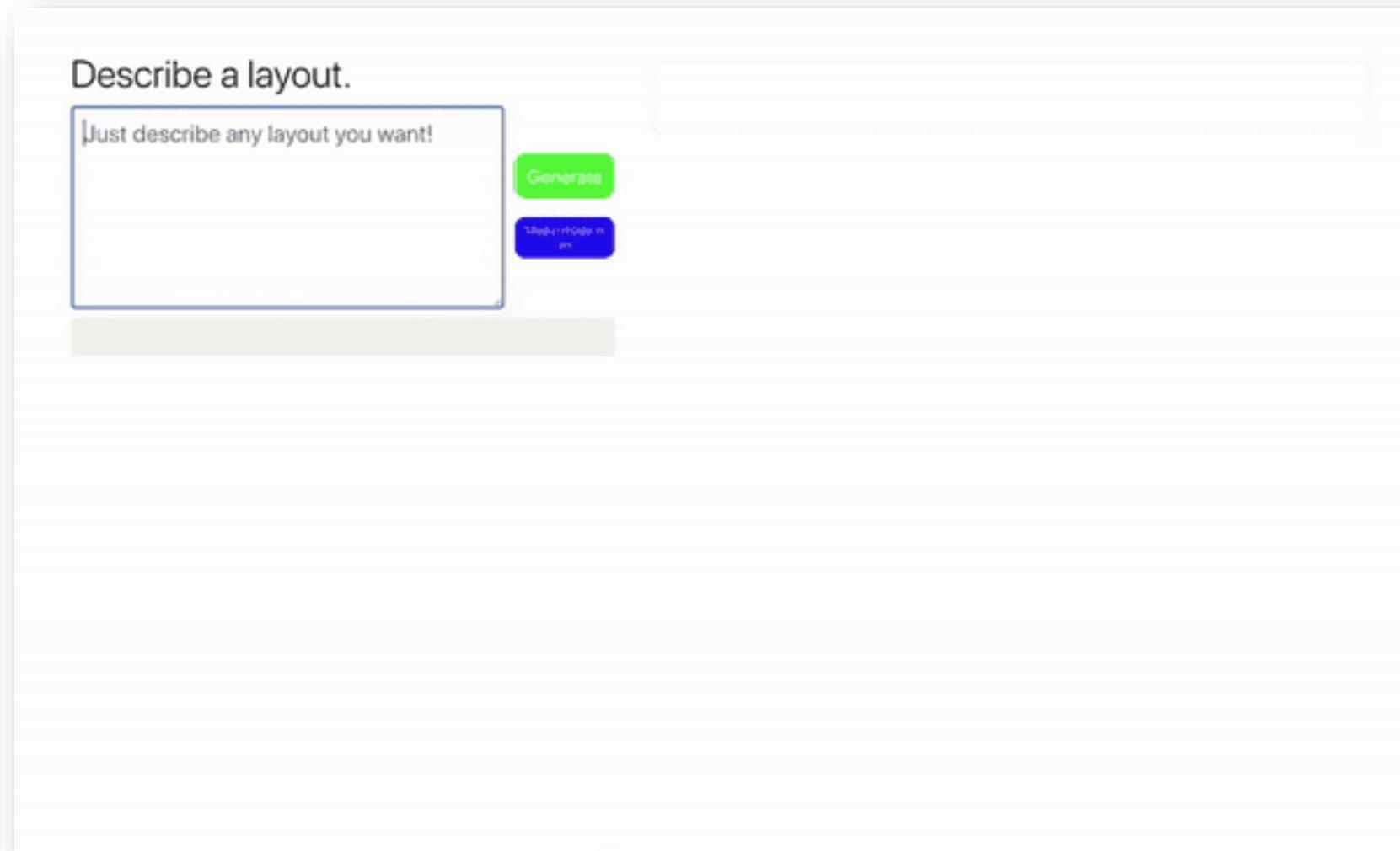
1 #!/usr/bin/env ts-node
2
3 import { fetch } from "fetch-h2";
4
5 // Determine whether the sentiment of text is positive
6 // Use a web service
7 async function isPositive(text: string): Promise<boolean> {
8   const response = await fetch(`http://text-processing.com/api/sentiment/`, {
9     method: "POST",
10    body: `text=${text}`,
11    headers: {
12      "Content-Type": "application/x-www-form-urlencoded",
13    },
14  });
15  const json = await response.json();
16  return json.label === "pos";
17 }
```





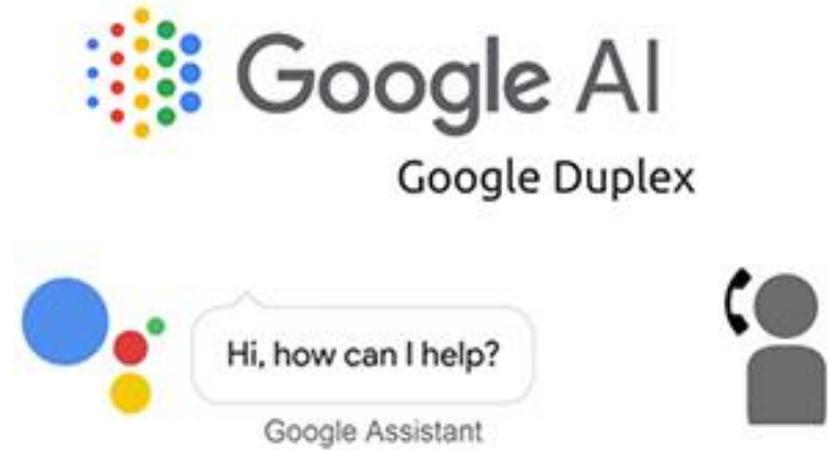
GPT-3

Mayo de 2020





Mayo de 2018

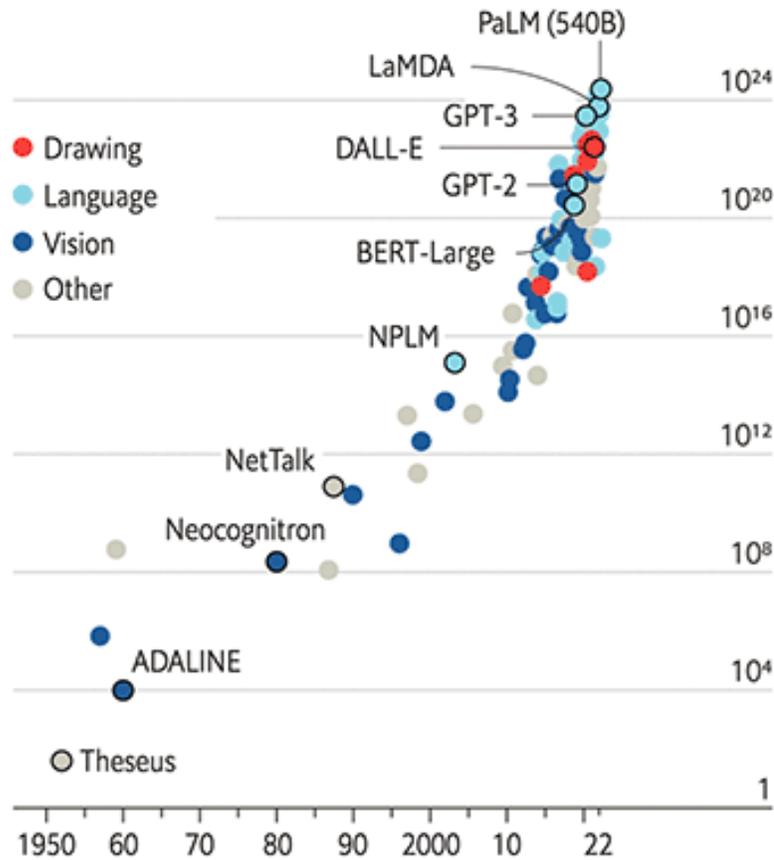




Evolución de las técnicas de Deep Learning

The blessings of scale

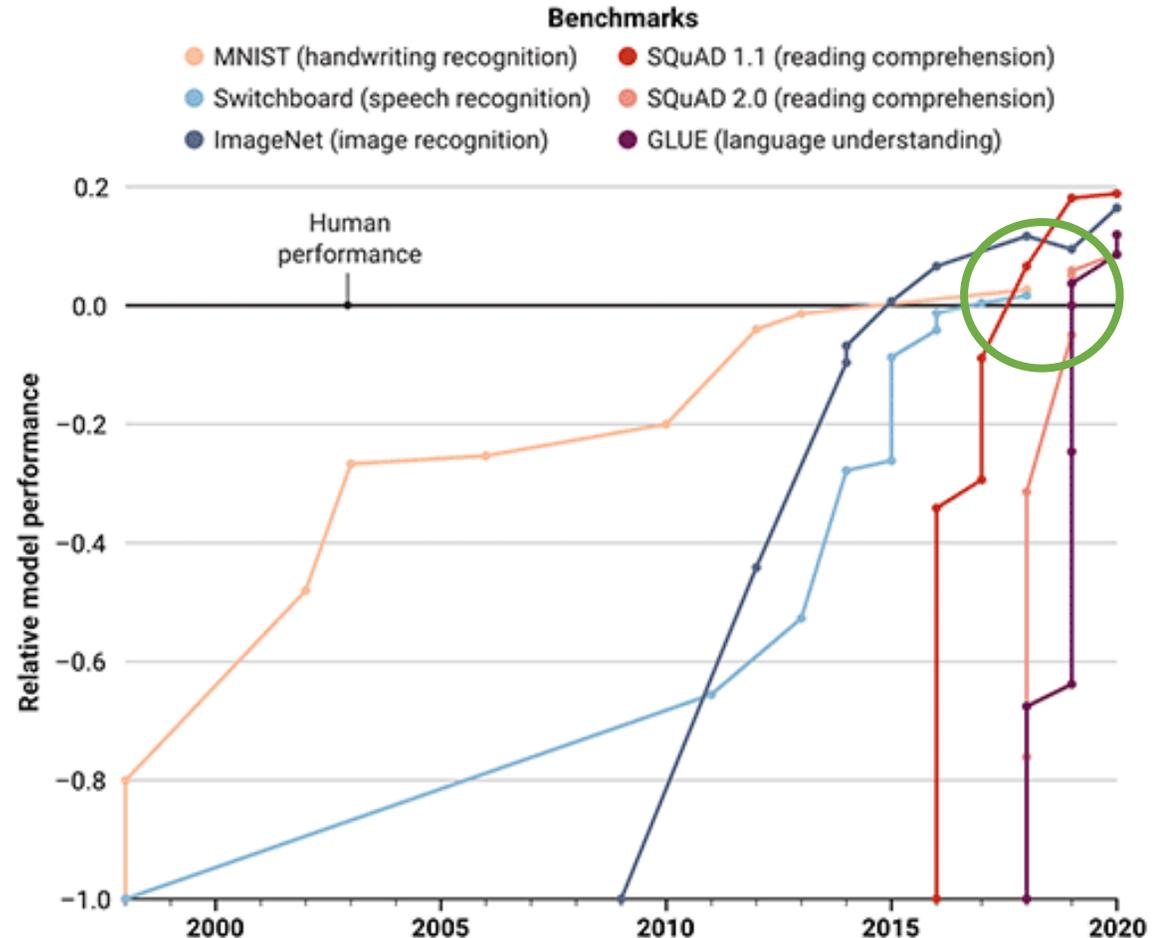
AI training runs, estimated computing resources used
Floating-point operations, selected systems, by type, log scale



Sources: "Compute trends across three eras of machine learning", by J. Sevilla et al., arXiv, 2022; Our World in Data

Quick learners

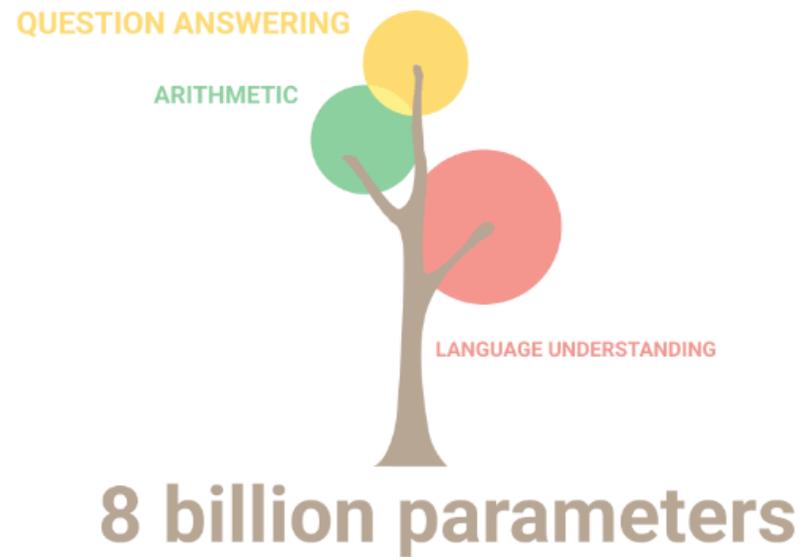
The speed at which artificial intelligence models master benchmarks and surpass human baselines is accelerating. But they often fall short in the real world.



(GRAPHIC) K. FRANKLIN/SCIENCE; (DATA) D. KIELA ET AL., DYNABENCH: RETHINKING BENCHMARKING IN NLP, DOI:10.48550/ARXIV.2104.14337



LLM Capabilites



TEXT DESCRIPTION

An astronaut Teddy bears A bowl of soup

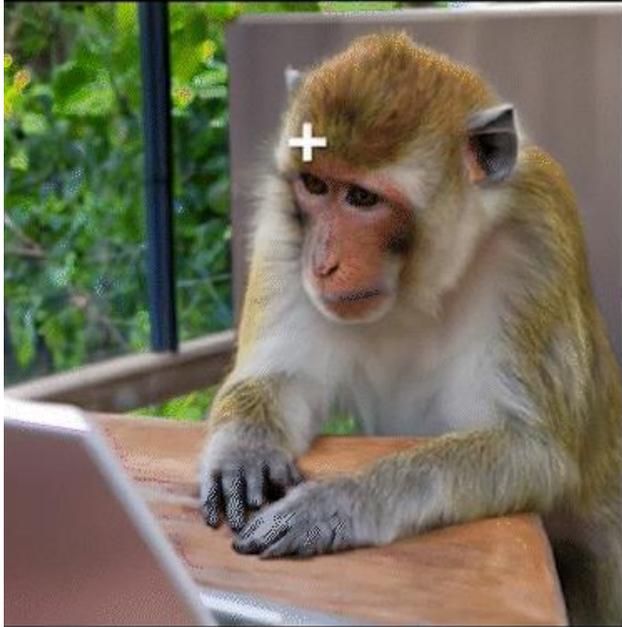
riding a horse lounging in a tropical resort in space playing basketball with cats in space

in a photorealistic style in the style of Andy Warhol as a pencil drawing



DALL-E 2





monkey paying taxes



Nuevos players

Septiembre de 2022

AlexNet
PRETRAINED MODEL

YOLO

DALL·E 2

Stable Diffusion

CogVideo

BERT



GPT-3

a BigScience initiative

BLM

176B params · 59 languages · Open-access

Google AI



540 billion parameters

PaLM 540B

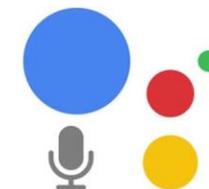
DeepMind

OpenAI

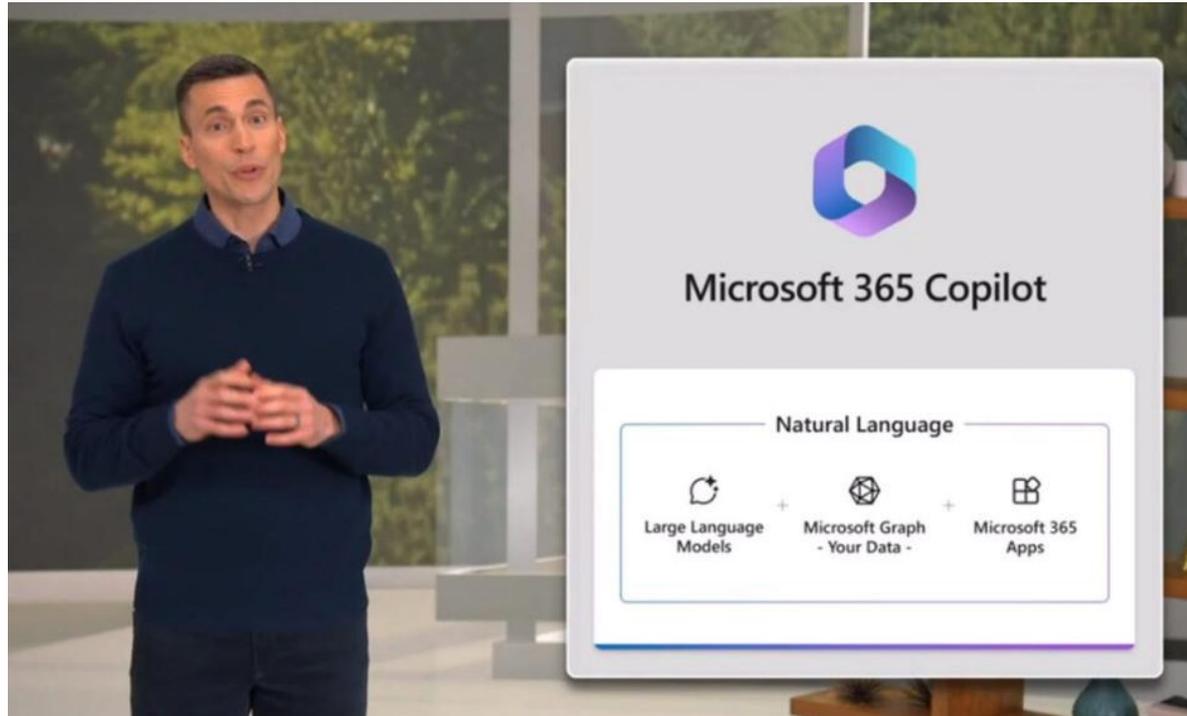
AlphaGo

GitHub Copilot

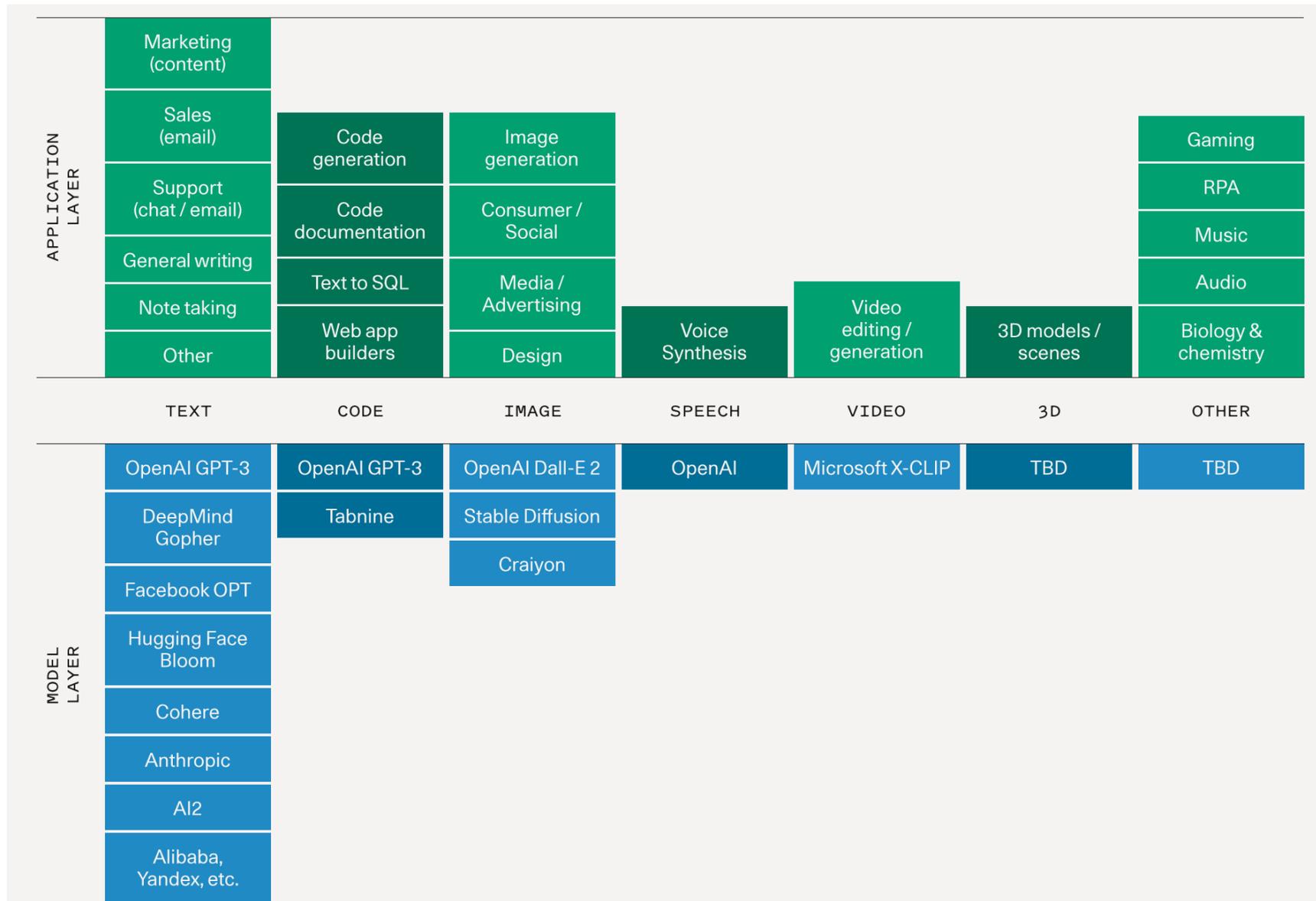
GOOGLE DUPLEX



Nuevos players



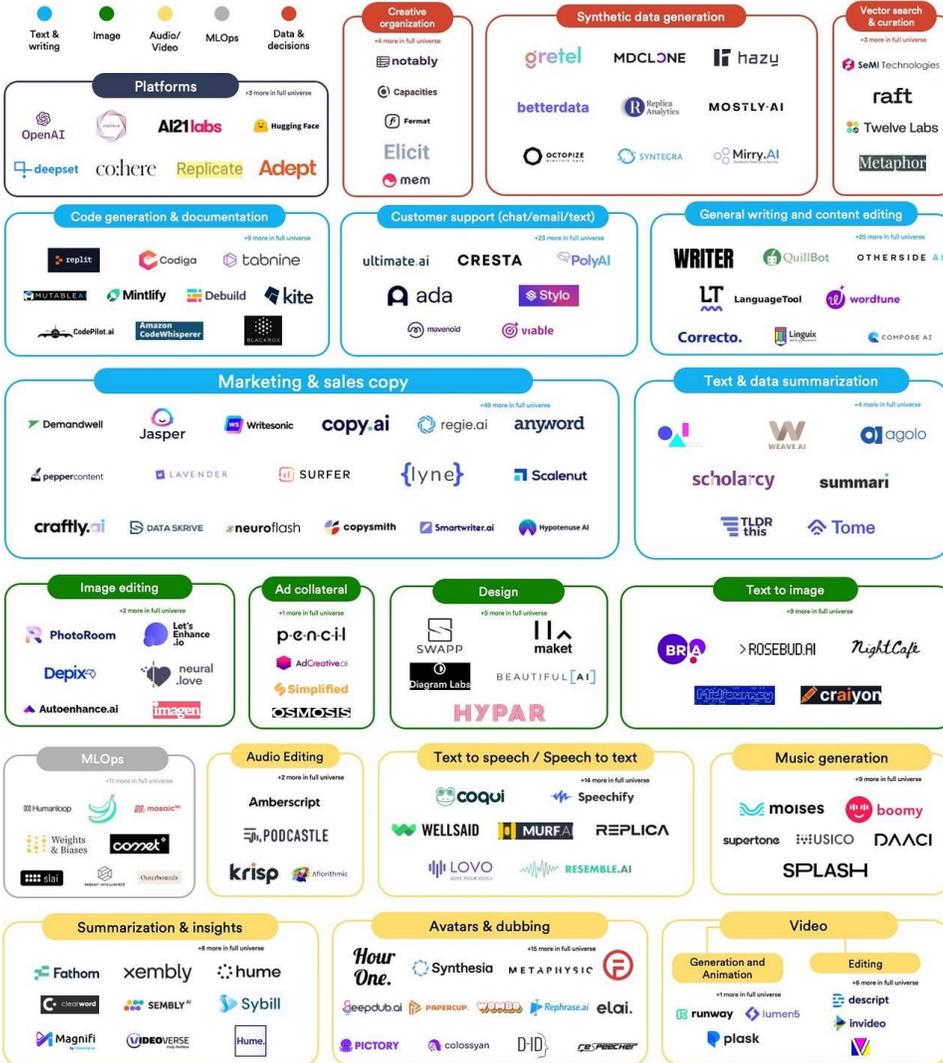
Generative AI Application Landscape



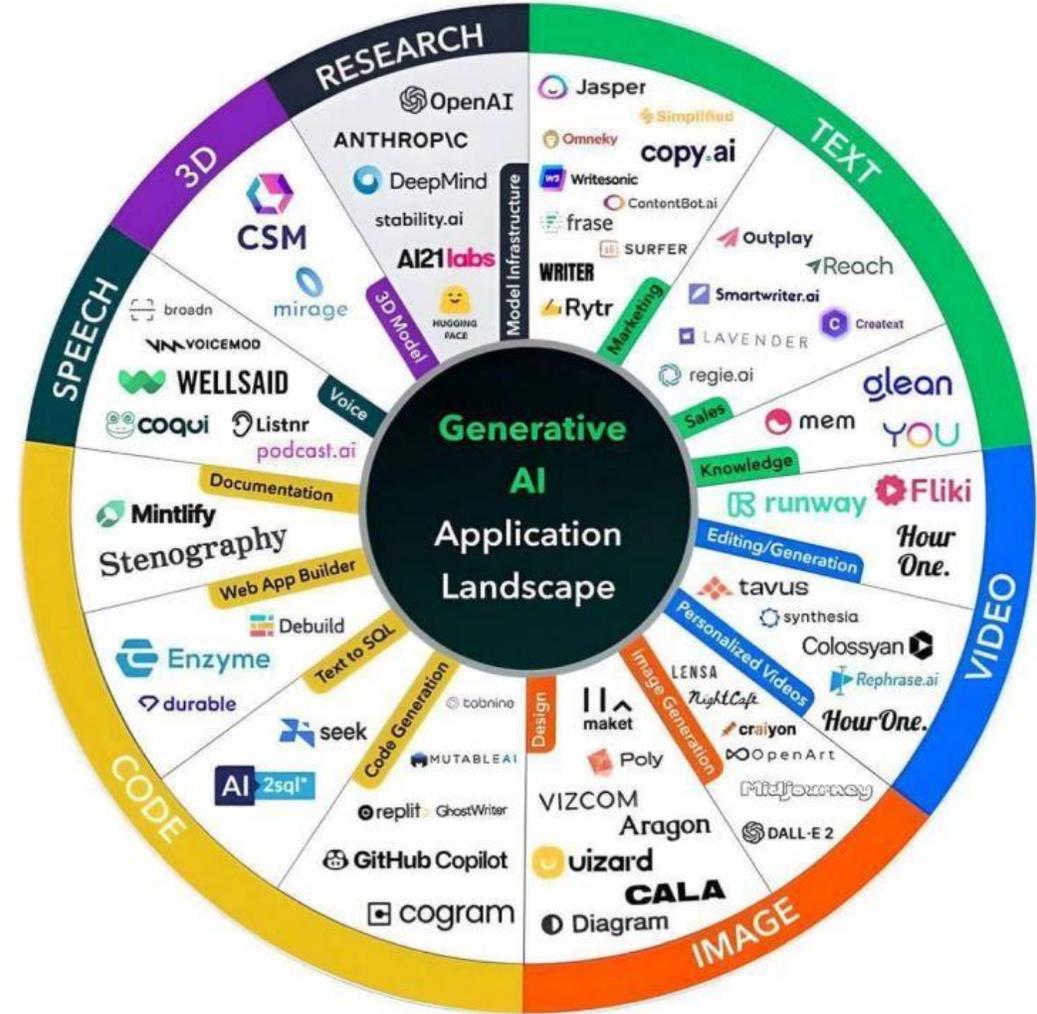
Generative AI Application Landscape

BASE10 TREND MAP: GENERATIVE AI

Companies are grouped based on medium produced and segmented by use case within each medium. Companies that offer products across segments are grouped in the segment of the core product offering.



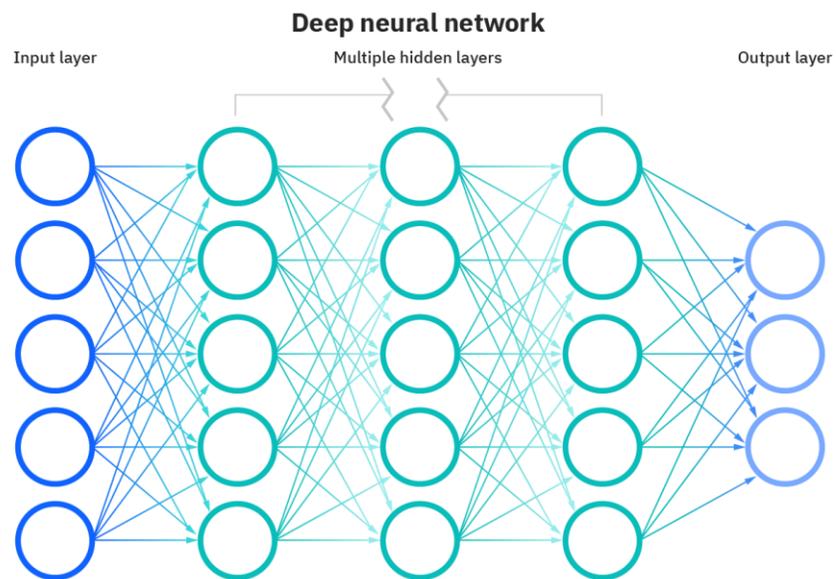
Base10



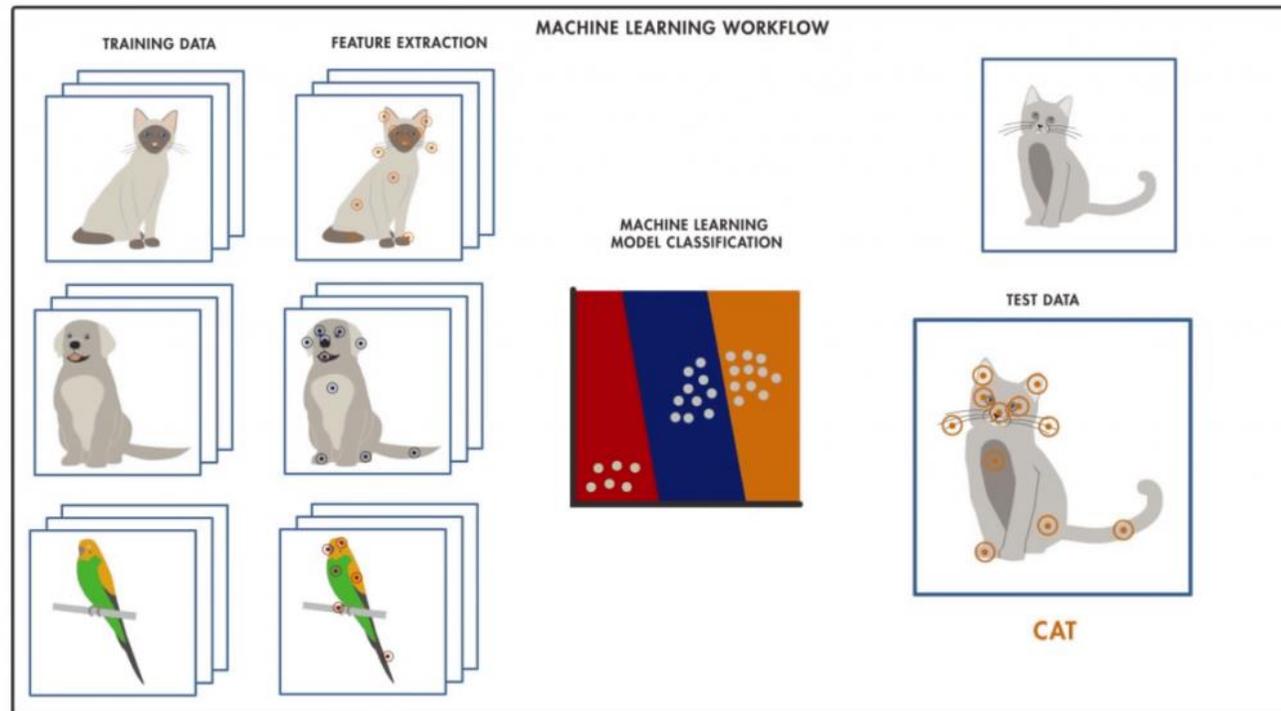


¿Cómo funciona?

Deep Learning al comienzo

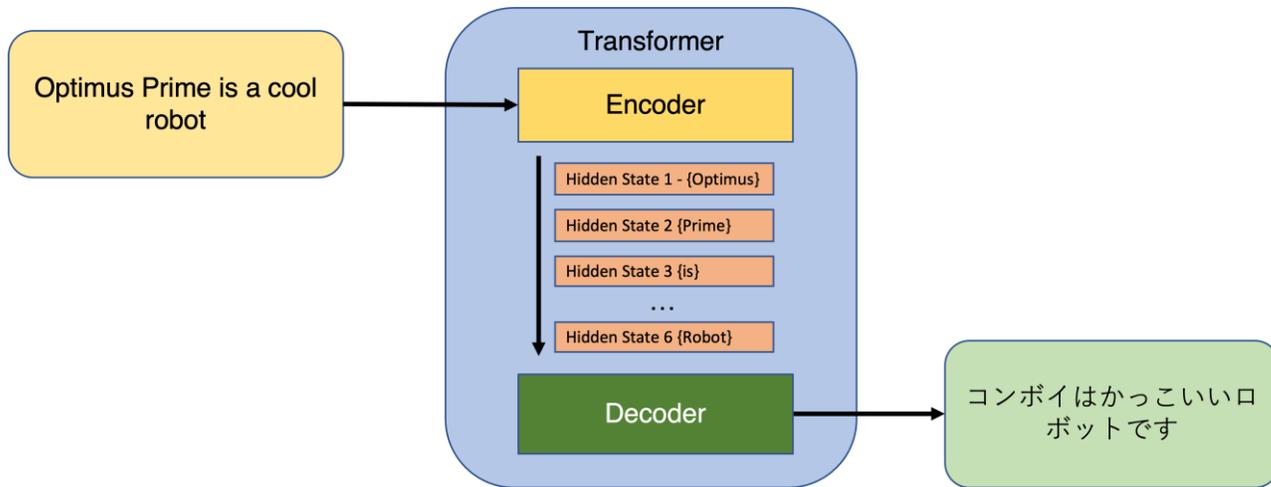


$$Y = f(X)$$



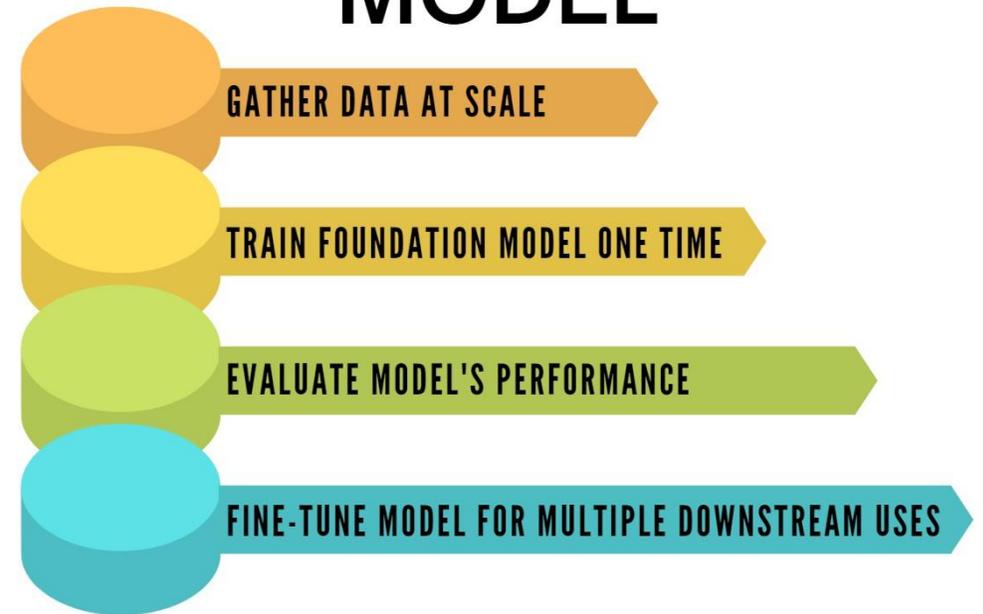
Aprendizaje supervisado

Deep Learning 2.0 Desde 2020 ...



T de Transformer

FOUNDATION MODEL



Aprendizaje auto-supervisado

Deep Learning 2.0

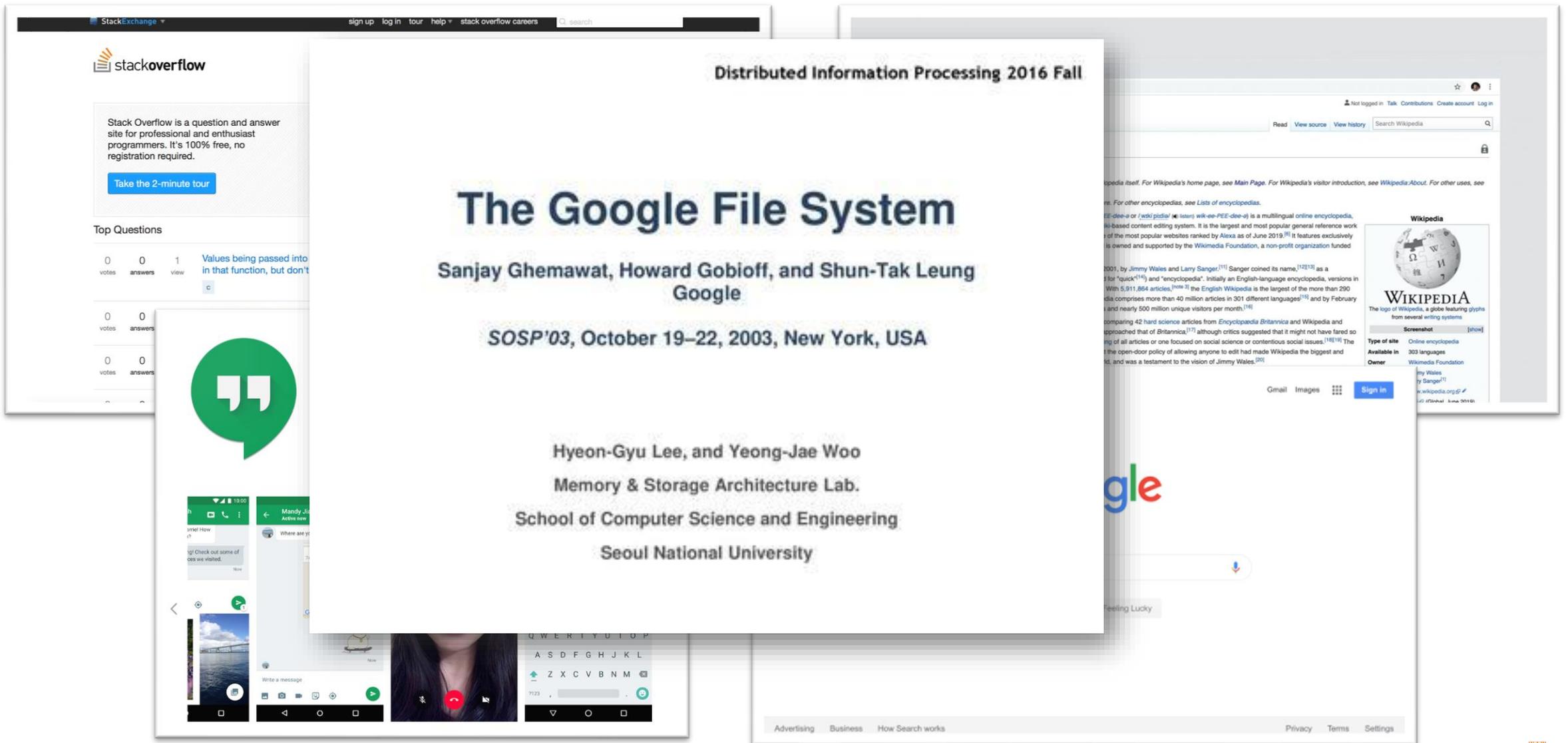
Esta tecnología comienza a funcionar



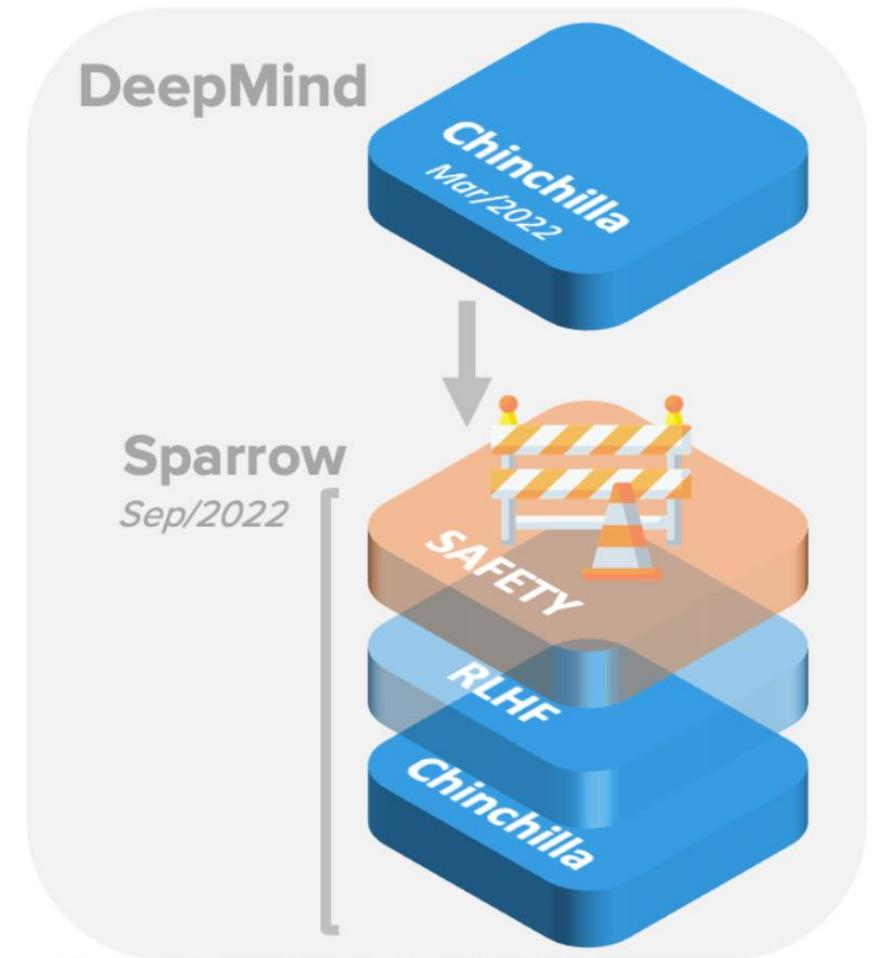
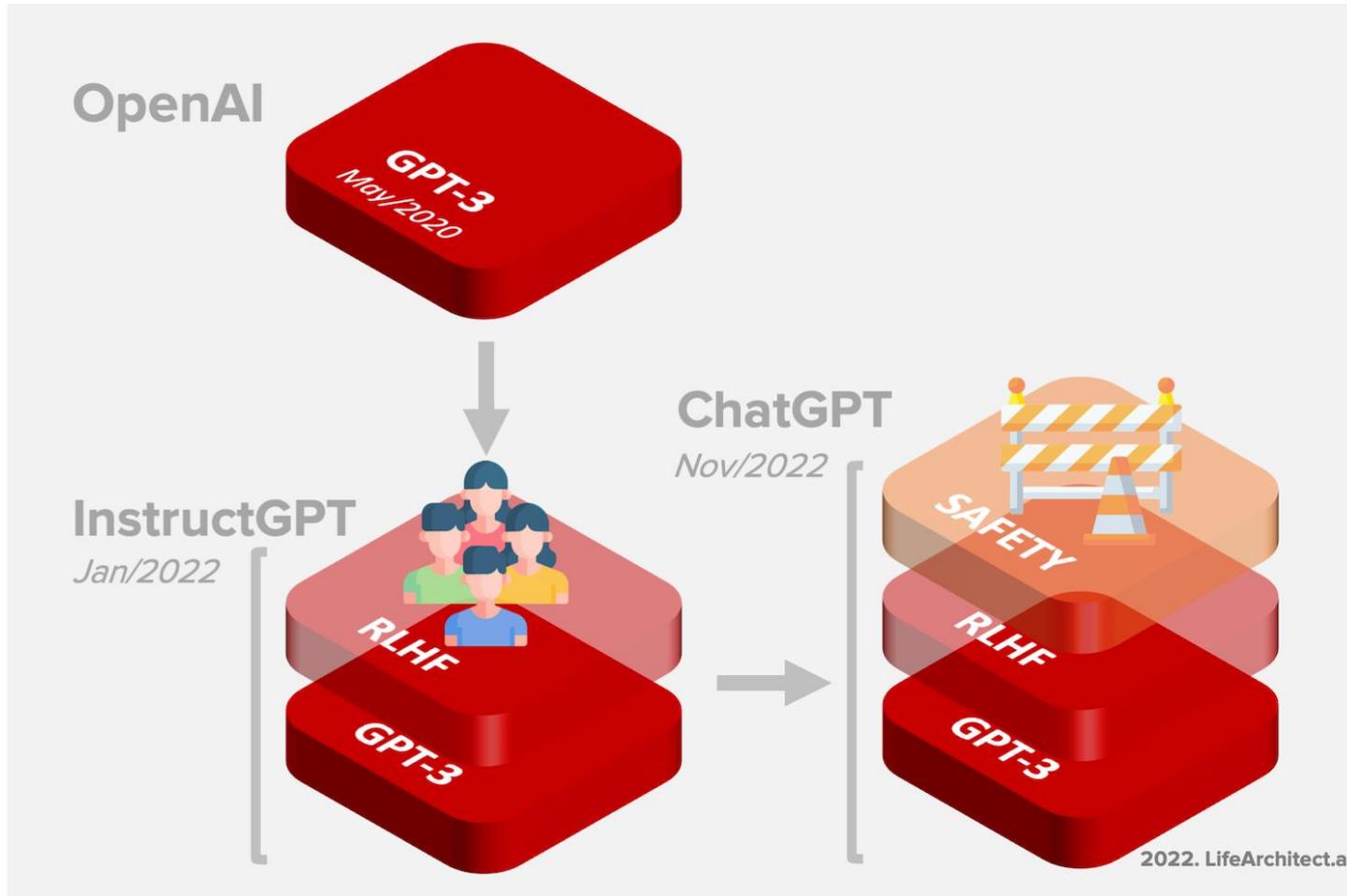
| Example # | Input (features) | Correct output (labels) |
|-----------|----------------------------------|-------------------------|
| 1 | Second law of robotics : | a |
| 2 | Second law of robotics : a | robot |
| 3 | Second law of robotics : a robot | must |
| ... | | |



Datos y más datos



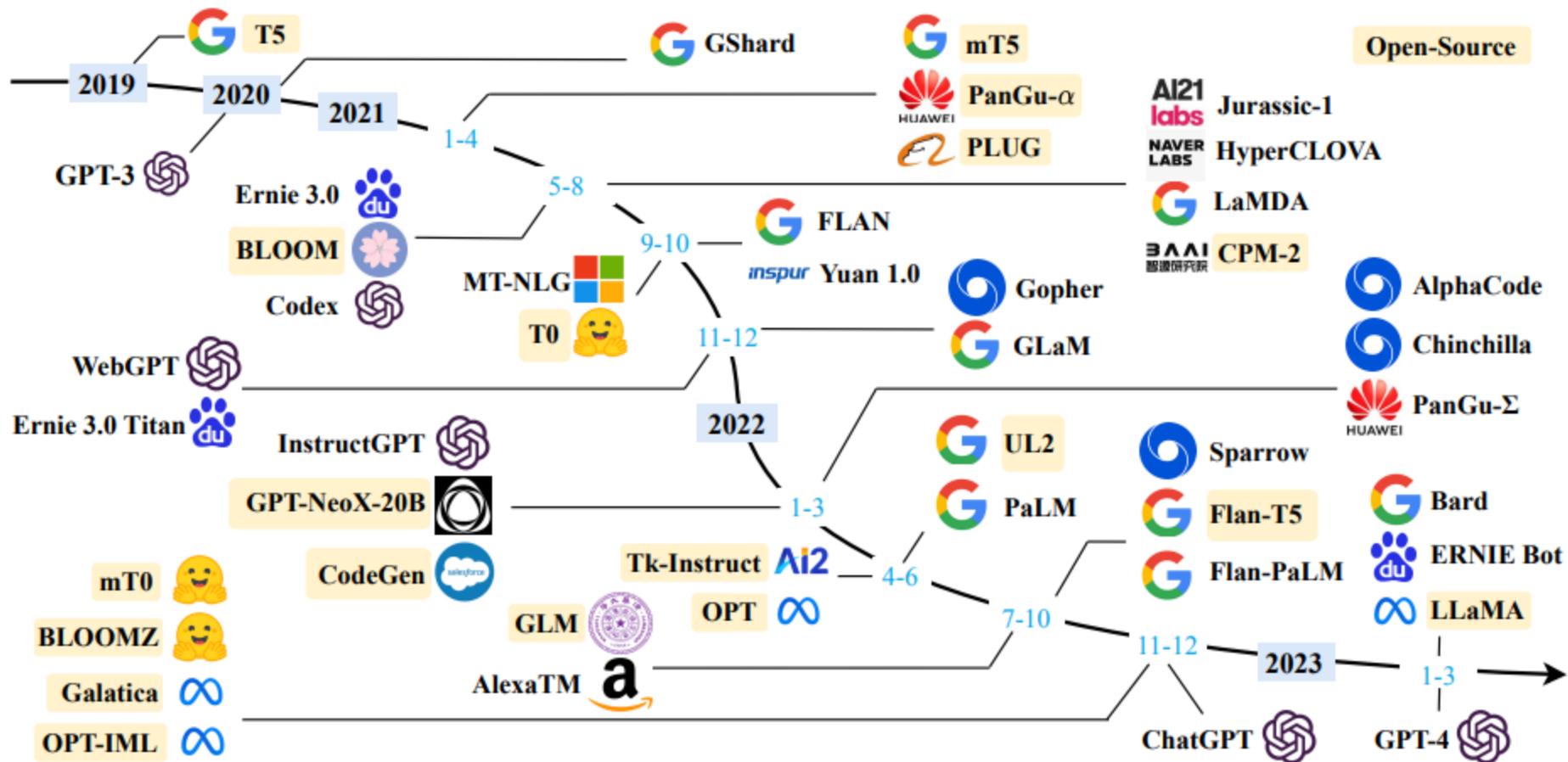
¿Cómo lo construyen?



Not to scale. Alan D. Thompson, December 2022. <https://lifeaiarchitect.ai/>

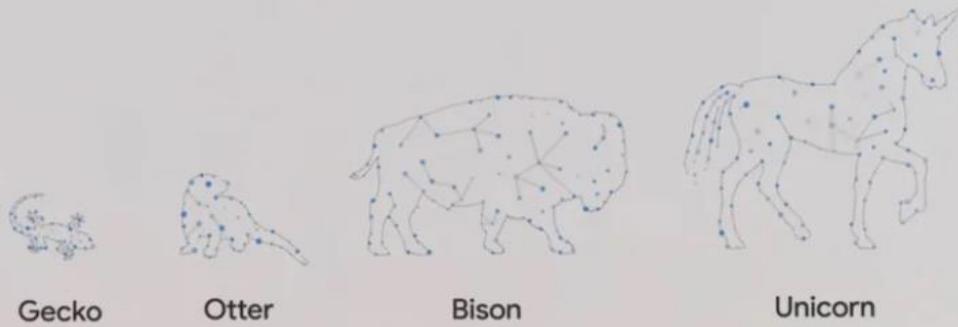


¿Existen alternativas?

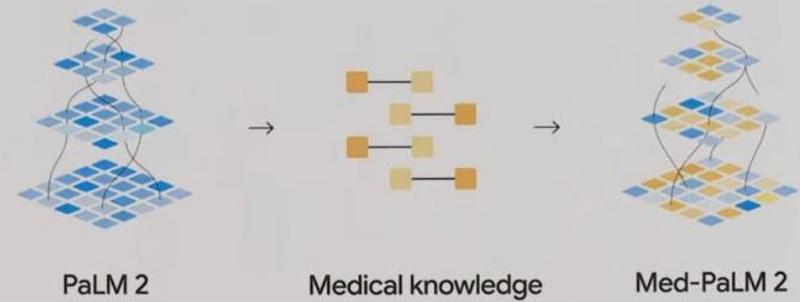


¿Cómo lo construyen?

PaLM 2 Models



PaLM 2 Fine-Tuning



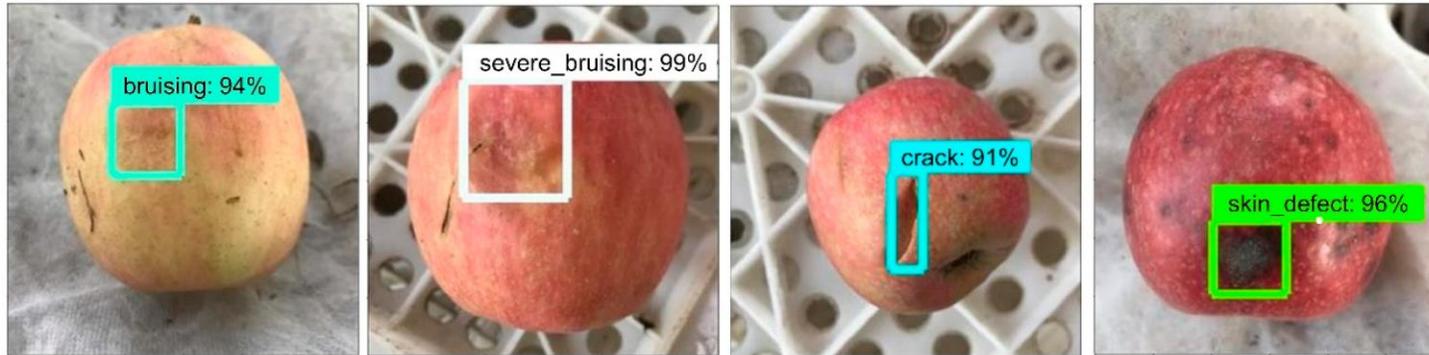
datos...

y más datos

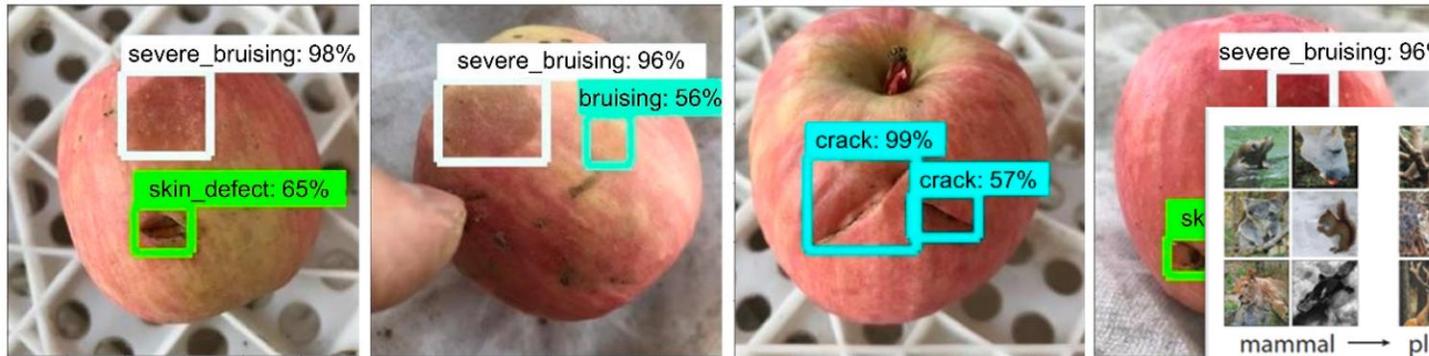
sensores
autómatas
clientes
productos
proveedores
producción
existencias
pedidos
facturación
costes
previsión
mantenimiento
control
robots
localización
procesos

SCADA control y adquisición de datos
MES sistema de ejecución de la fabricación
SGA sistema de gestión de almacén
PLM gestión del ciclo de vida del producto
TMS sistema de gestión del transporte
SCM gestión de la cadena de suministros
ERP sistema de planificación empresarial
CRM gestión de la relación con clientes

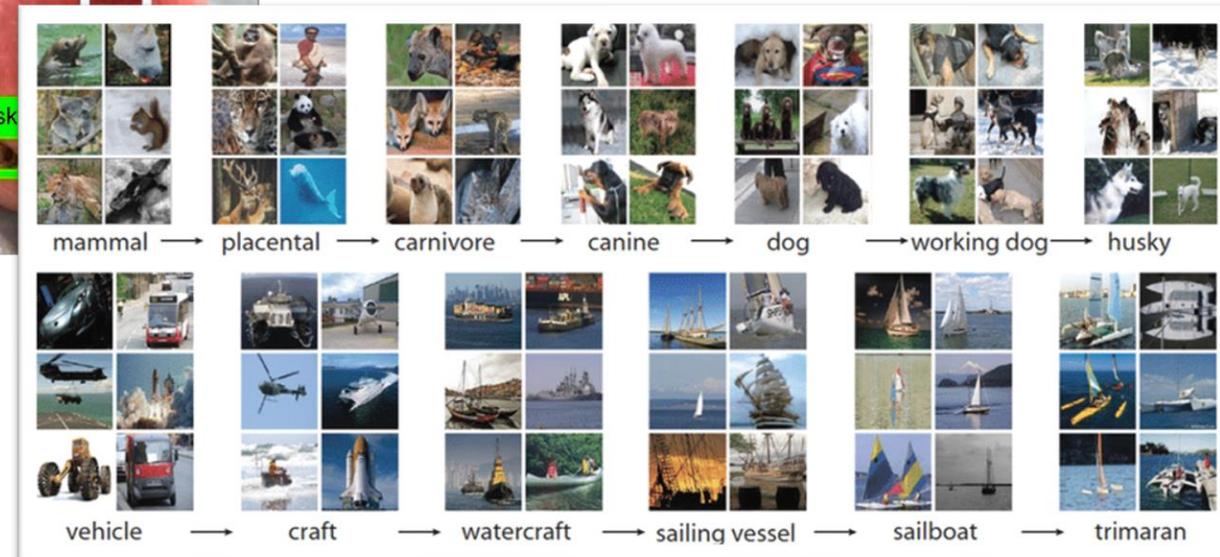
Aplicación práctica



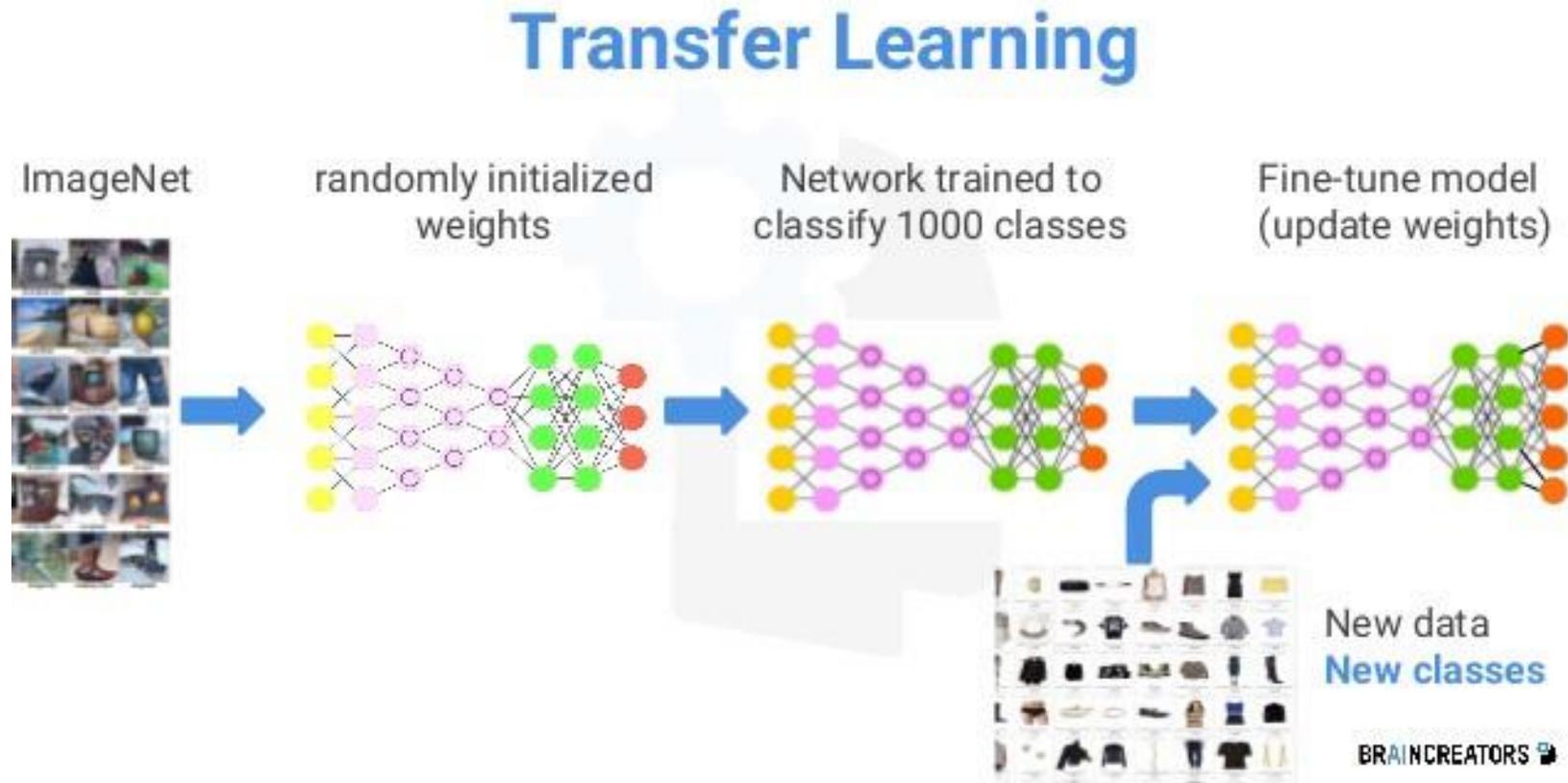
(a)



← Aprendizaje por transferencia



Aprendizaje por Transferencia



Ahora hablamos de

Few-shot learning in practice

1 Translate English to French:

← *task description*

2 sea otter => loutre de mer

← *examples*

3 peppermint => menthe poivrée

←

4 plush girafe => girafe peluche

←

5 cheese =>

← *prompt*

The background features a complex, futuristic digital interface in shades of blue. It consists of multiple concentric circles and rings, some containing small square and circular markers, resembling a data visualization or a control panel. A prominent dark horizontal band runs across the center of the image, serving as a backdrop for the text. The overall aesthetic is high-tech and digital.

¿Oportunidad o amenaza?

Welcome to OpenAI

Start with the basics

Quickstart tutorial
Learn by building a quick sample app

Examples
Explore some example tasks

Build an application

Chat Beta
Learn how to use chat-based language models

Text completion
Learn how to generate or edit text

Embeddings
Learn how to search, classify, and compare text

Speech to text Beta
Learn how to turn audio into text

Image generation Beta
Learn how to generate or edit images

Code completion Limited beta
Learn how to generate, edit, or explain code

Fine-tuning
Learn how to train a model for your use case



English: How do you reset your password?



Spanish:



English: To reset your password, follow these steps:



1. Go to the login page of the website or application where you need to reset your password.
2. Look for the "Forgot Password" or "Reset Password" option. It is usually located near the login form.
3. Click on that option, and you will be redirected to a password reset page.
4. On the password reset page, you may be asked to enter your email address or username associated with your account.
5. Provide the required information and click on the "Submit" or "Reset Password" button.
6. You will receive an email with instructions on how to reset your password. If you don't receive an email, check your spam or junk folder.
7. Open the email and follow the instructions provided. It may include a link to a password reset page or a temporary password.
8. Click on the link or enter the temporary password on the password reset page.
9. Once you access the password reset page, enter your new password. Make sure to choose a strong and unique password.
10. After entering the new password, confirm it and save the changes.
11. You should now be able to log in using your new password.

Remember to keep your passwords secure and avoid using the same password for multiple accounts.



Translate.

English: How do you reset your password?

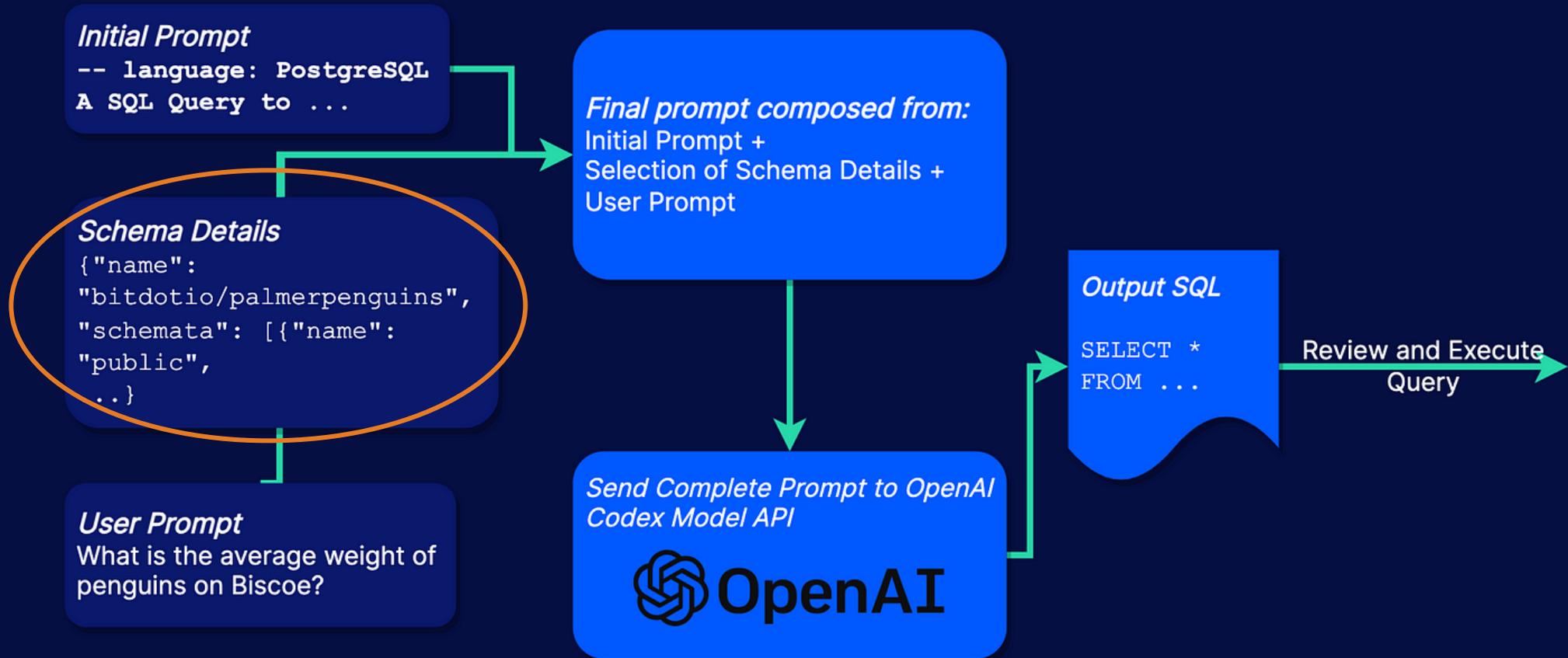
Spanish:



Spanish: ¿Cómo restableces tu contraseña?



¿Cuál es el problema?





First Edition

DEEPFAKES OF TRUMP ARREST EMERGE ON TWITTER

REAL NEWS, HONEST VIEWS.

Debemos regular

Sam Altman, OpenAI CEO, on Key Risks of Generative AI and How AI Will Reshape Society.



"I think people should be happy that we are a little bit scared of this..."

ABC News' Rebecca Jarvis interviews OpenAI CEO Sam Altman on risks and how AI will reshape society. – March 17, 2023

<https://www.youtube.com/watch?v=540vzMif-54>

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"We stand on the precipice of fundamental societal transformation where, soon, ... the collective intelligence of the human species begins to pale in comparison, by many orders of magnitude, to the general super-intelligence in the AI systems we build and deploy, at scale.

This is both exciting...and terrifying..."

– Lex Fridman, March 25, 2023



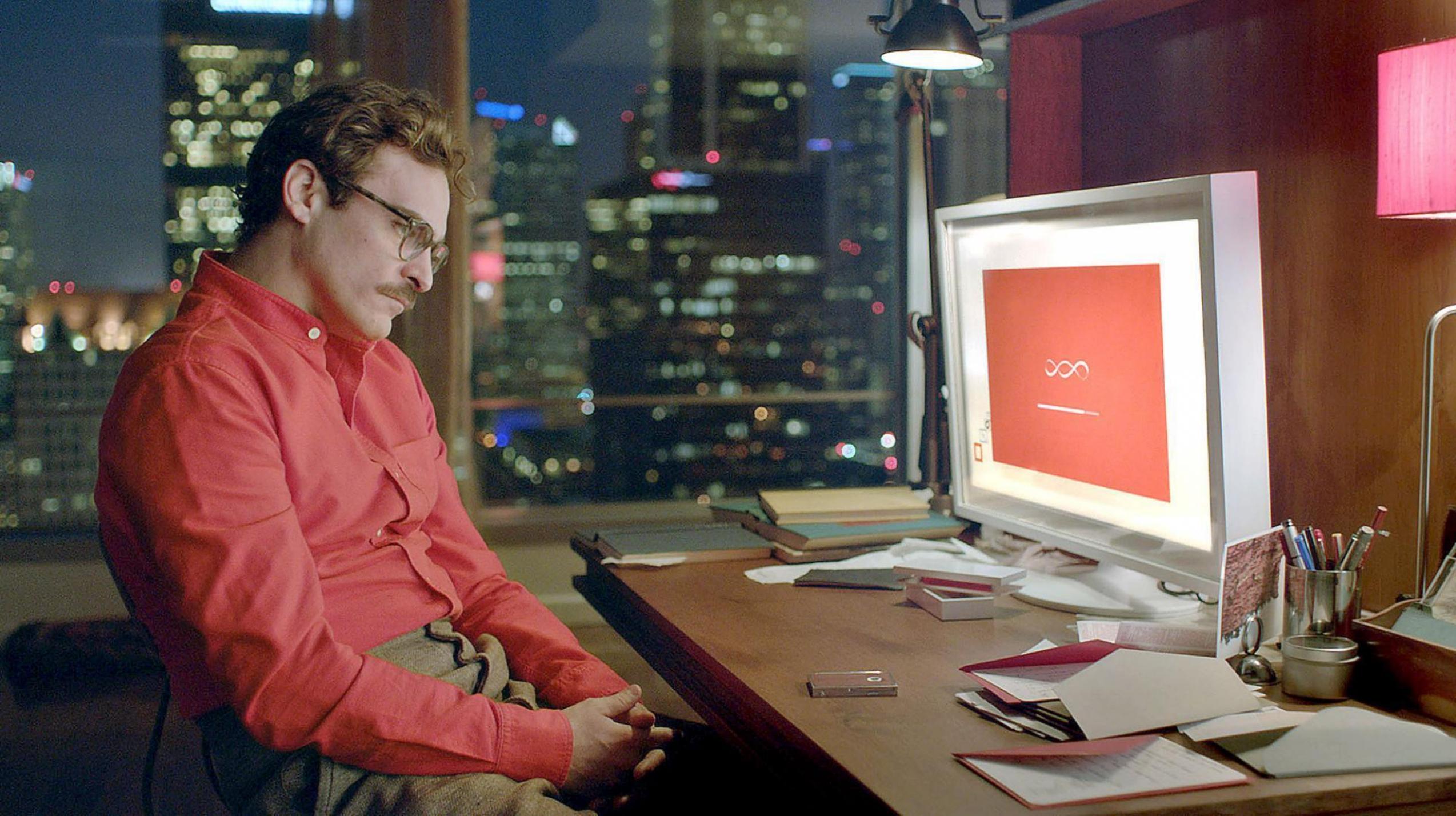
Sam Altman: OpenAI CEO on GPT-4, ChatGPT, and the Future of AI

– Lex Fridman Podcast #367 – March 25, 2023

https://www.youtube.com/watch?v=L_Guz73e6fw

Gartner



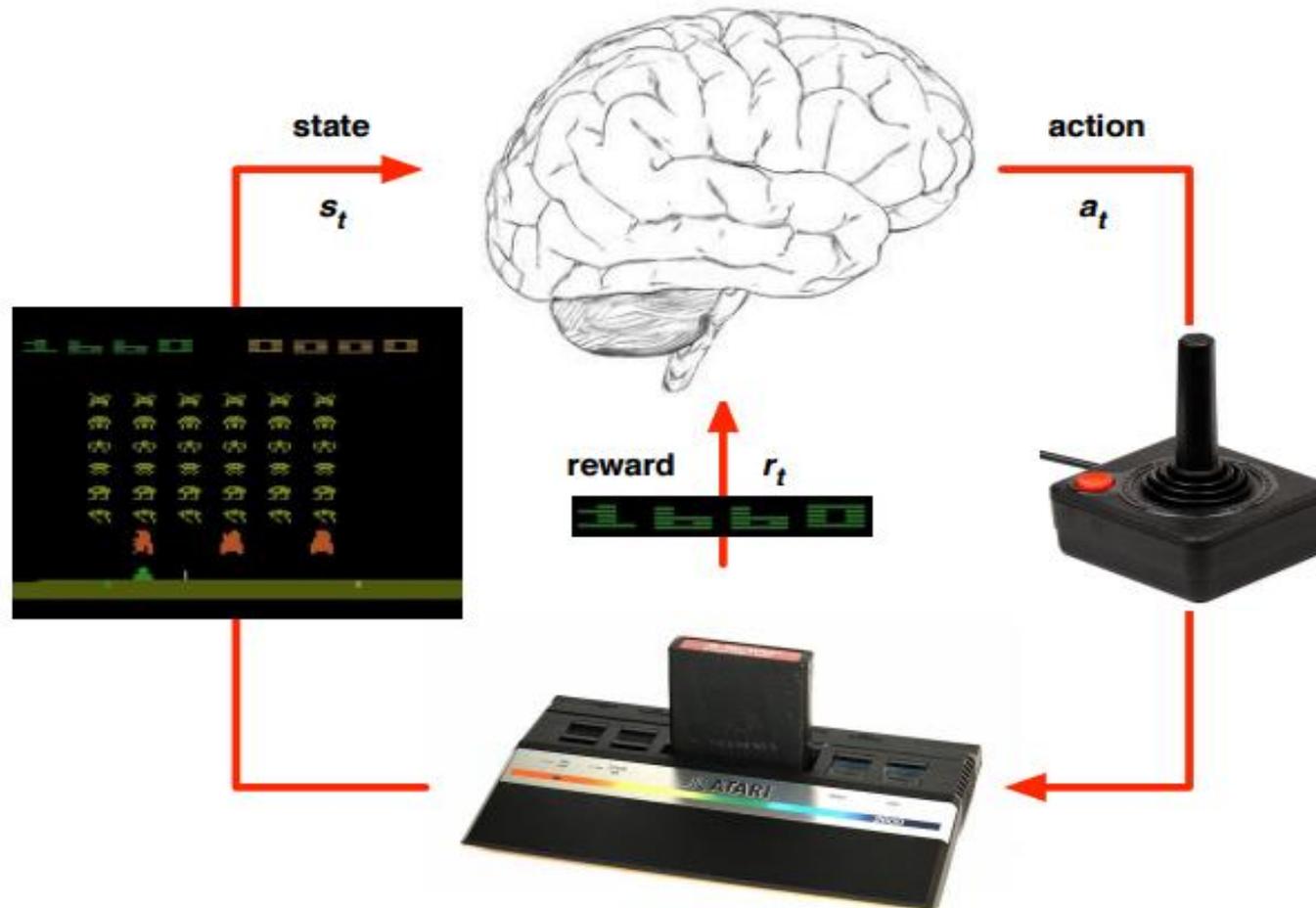




¿Cuál es la tendencia?



Reinforcement Learning



Reinforcement Learning

Article

Faster sorting algorithms discovered using deep reinforcement learning

<https://doi.org/10.1038/s41586-023-06004-9>

Received: 25 July 2022

Accepted: 23 March 2023

Published online: 7 June 2023

Open access



Check for updates

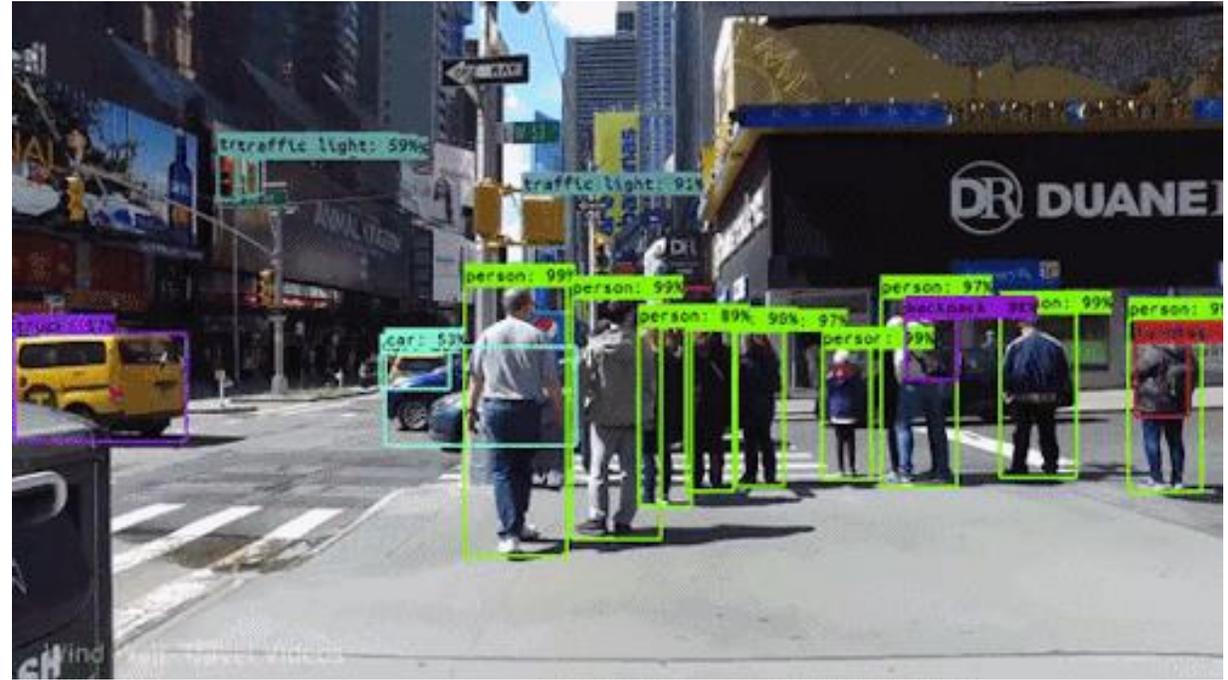
Daniel J. Mankowitz^{1,3}✉, Andrea Michi^{1,3}, Anton Zhernov^{1,3}, Marco Gelmi^{1,3}, Marco Selvi^{1,3}, Cosmin Paduraru^{1,3}, Edouard Leurent^{1,3}, Shariq Iqbal¹, Jean-Baptiste Lespiau¹, Alex Ahern¹, Thomas Köppe¹, Kevin Millikin¹, Stephen Gaffney¹, Sophie Elster¹, Jackson Broshear¹, Chris Gamble¹, Kieran Milan¹, Robert Tung¹, Minjae Hwang², Taylan Cemgil¹, Mohammadamin Barekatin¹, Yujia Li¹, Amol Mandhane¹, Thomas Hubert¹, Julian Schrittwieser¹, Demis Hassabis¹, Pushmeet Kohli¹, Martin Riedmiller¹, Oriol Vinyals¹ & David Silver¹

Fundamental algorithms such as sorting or hashing are used trillions of times on any given day¹. As demand for computation grows, it has become critical for these

<https://www.lavanguardia.com/tecnologia/actualidad/20210525/7477912/inteligencia-artificial-refuta-conjeturas-matematicas-ayuda-humana.html>

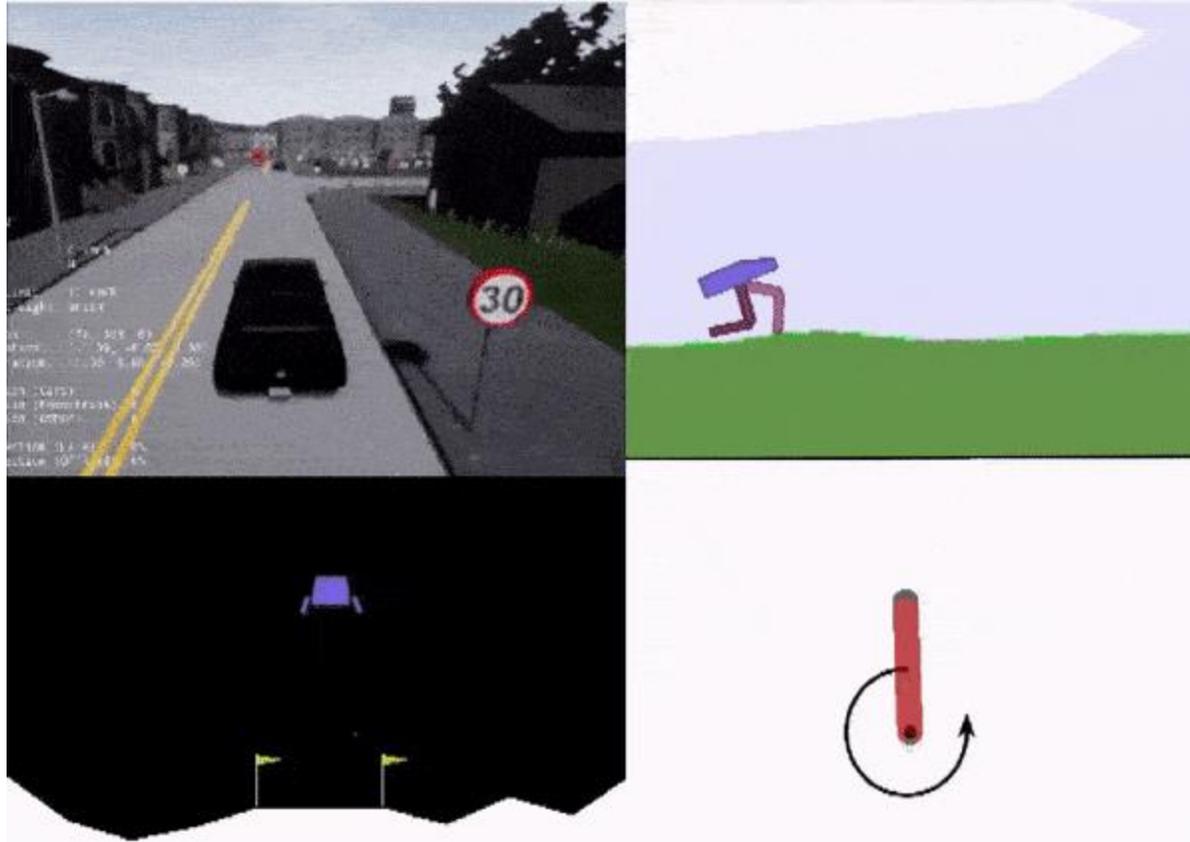


Reinforcement Learning

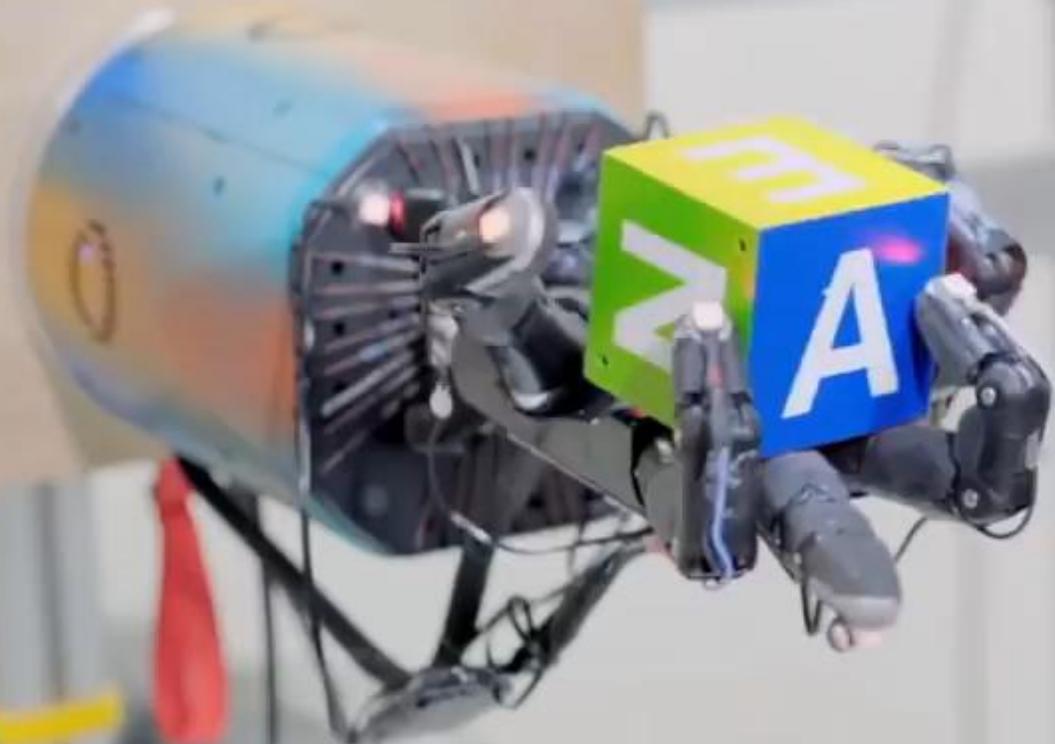


¿Qué papel juega la IA Generativa?

LLM + Reinforcement Learning



REAL-TIME



GOAL 1



ORGANIZADORES:



VALENCIA

XVI JORNADAS ODOO

PATROCINADORES ORO



PATROCINADORES PLATA



COLABORADORES:

