

# What is generative AI?

GENERATIVE AI FOR BUSINESS



Carl Rosseel

Head of Business Intelligence  
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# (Generative) Artificial Intelligence

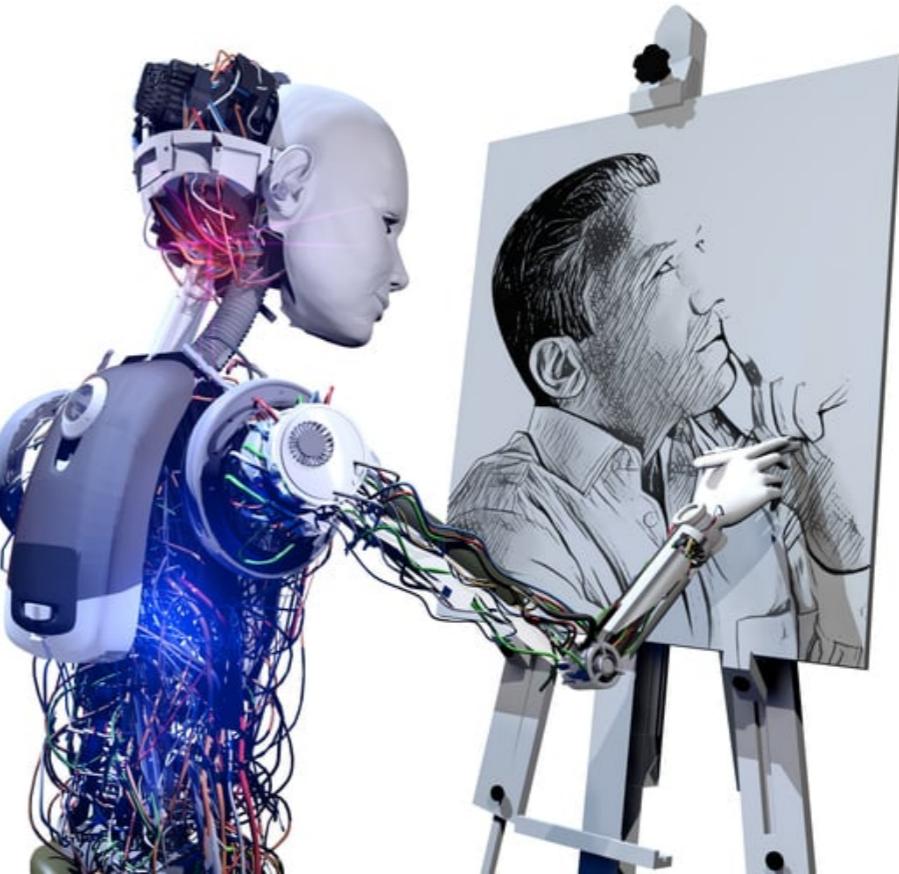
## Artificial intelligence (AI)

= branch of computer science that enables computers to perform tasks

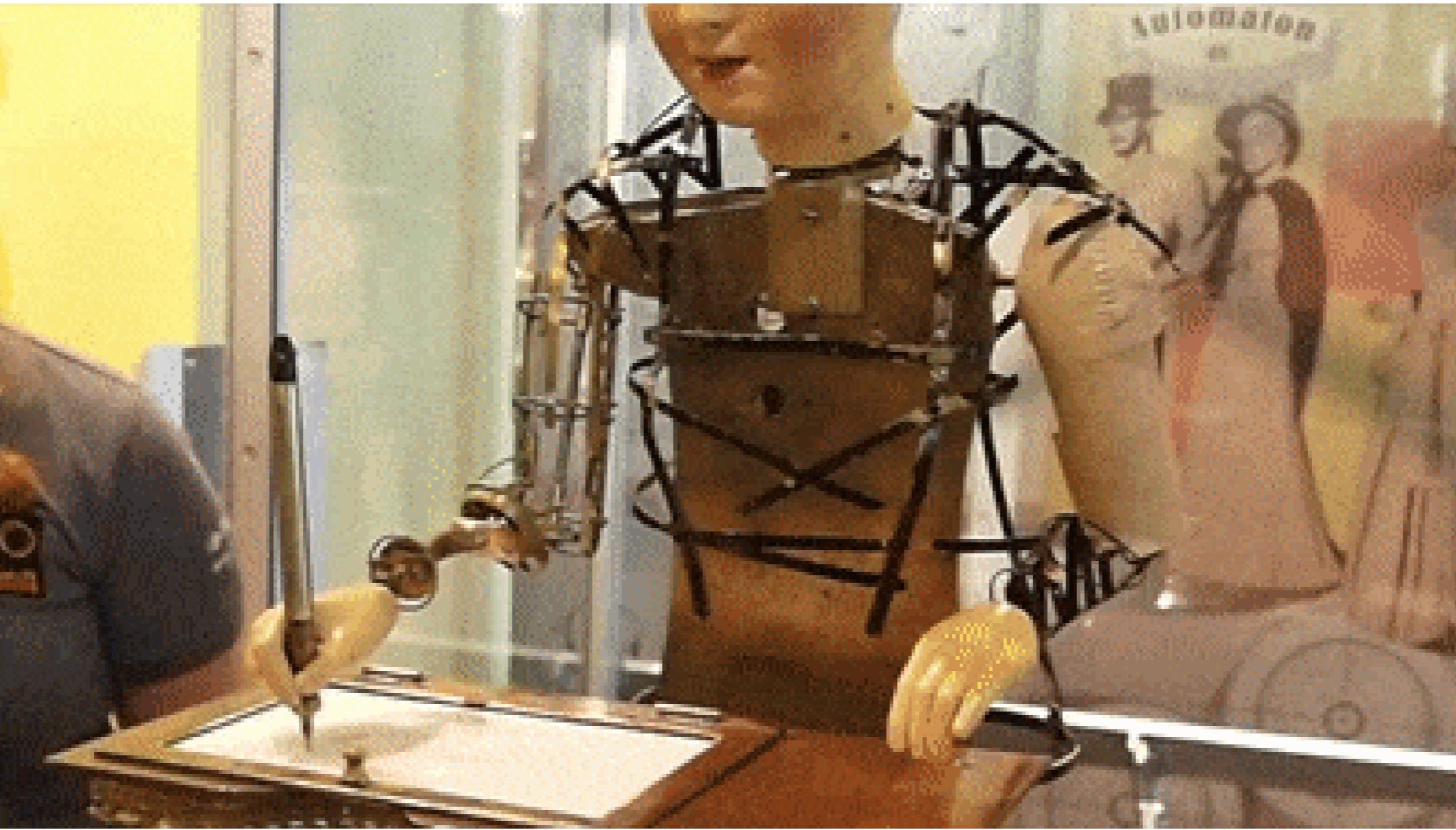


## Generative Artificial Intelligence (Gen AI)

= enables machines to create like humans



# Machines that create - Juvenile Artist

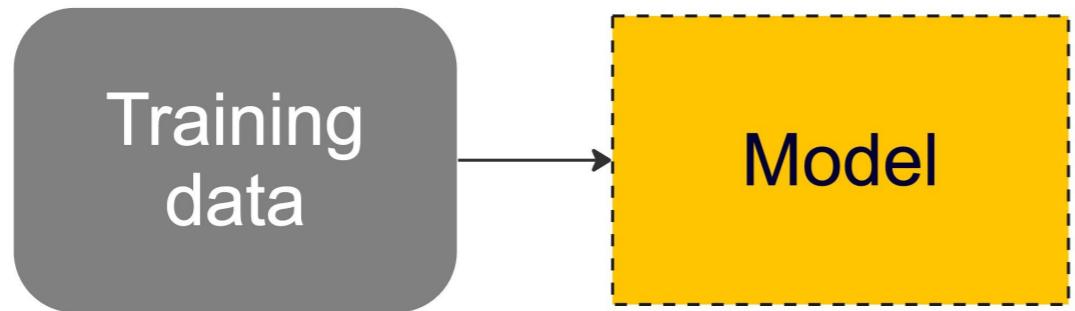


# "Creativity is the art of concealing your sources"



# How it works

## Training



## Prompting



# An example

## Training



Boat on the river banks



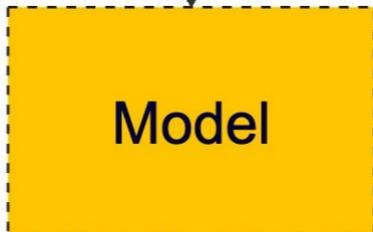
Trees in a thick forest



Water lily in a pond

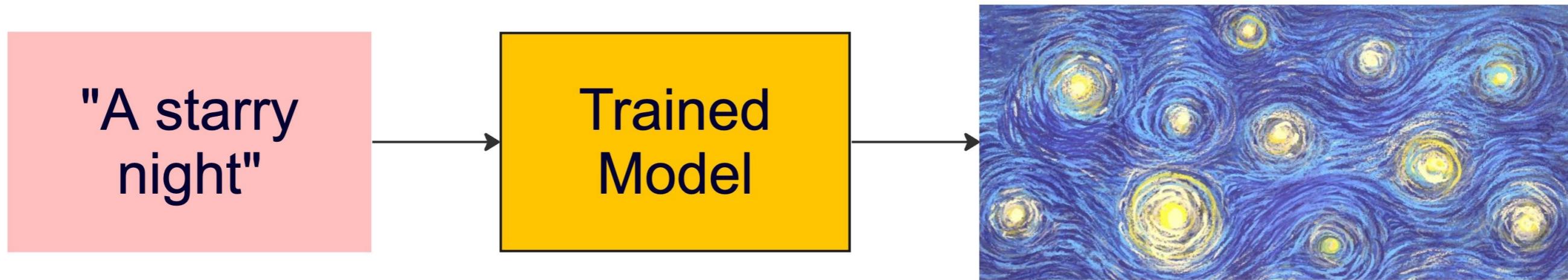


Lots more...



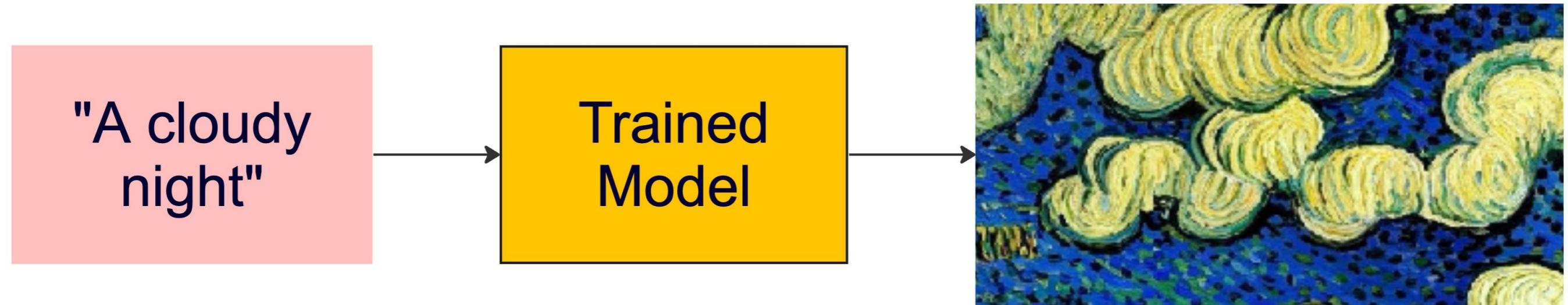
# An example

## Prompting



# An example

## Another prompt



# Images are not everything

CA

Write a Haiku to showcase the power of Generative AI

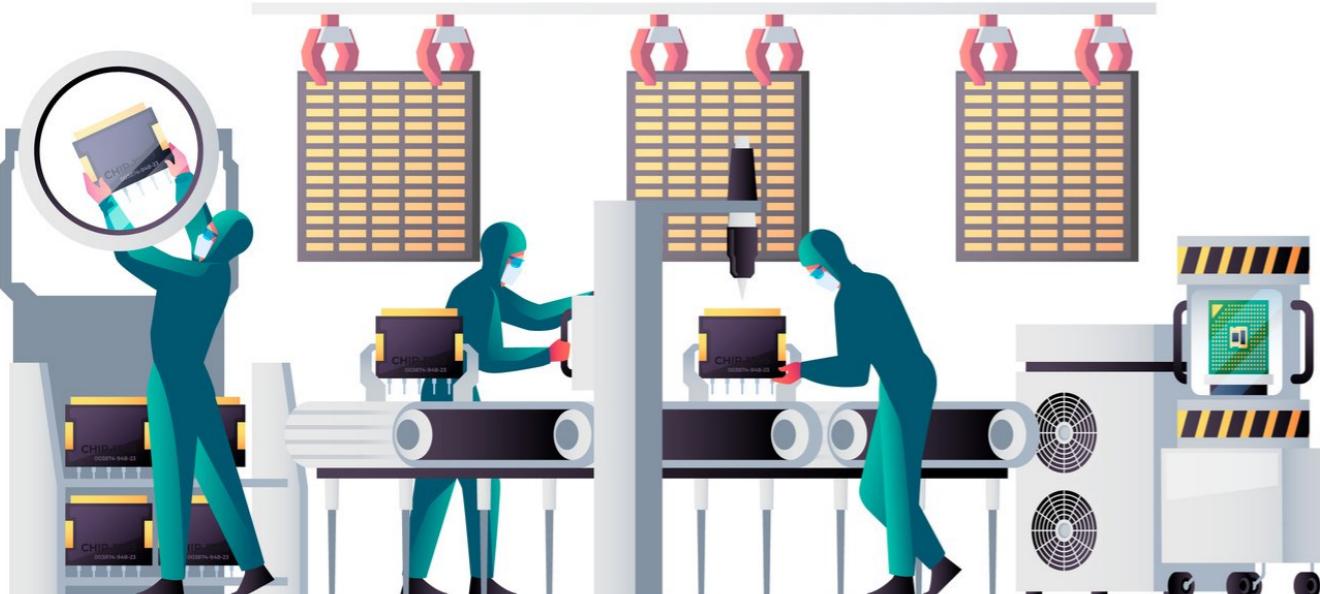


Code breathes, dreams take flight,  
Silent whispers shape the void,  
Worlds birthed from the mind.

# Business applications

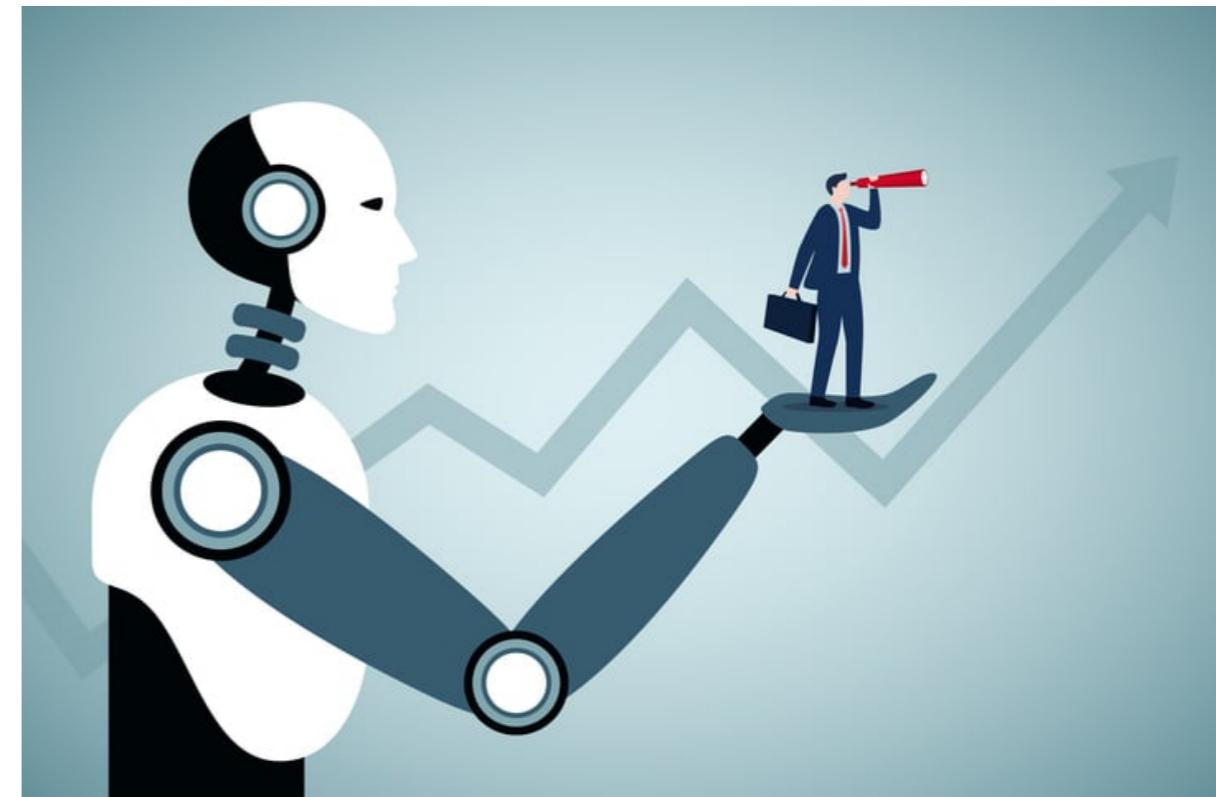
## Daily operations

- Personalized customer service
- Enhanced software development



## Strategic initiatives

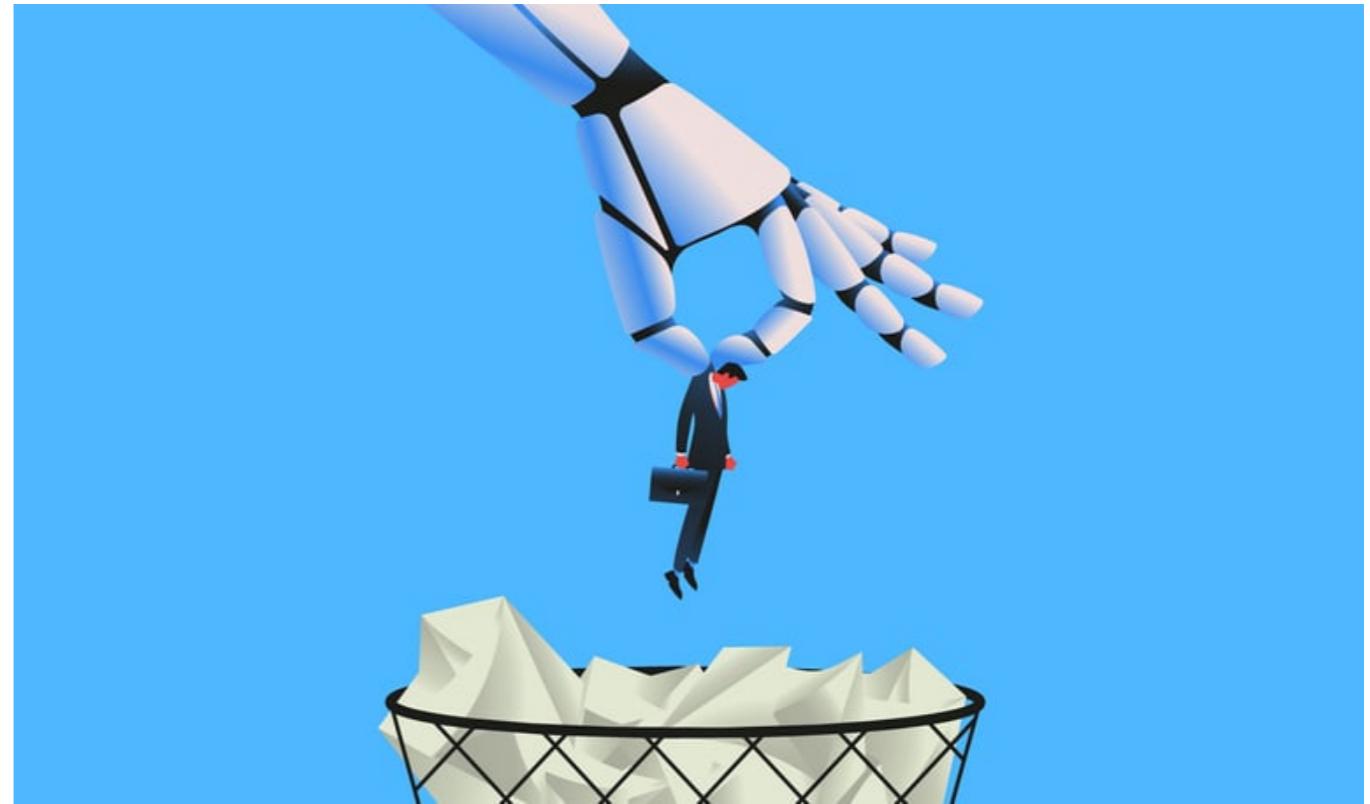
- Document drafting and summarization
- Designing the next generation of products



# Will we be replaced?

No, we will collaborate

- AI and Chess
  - Gary Kasparov lost to Deep Blue in 1997
  - Chess players and AI work together
- Harness the power of generative AI through human oversight



<sup>1</sup> <https://www.alezan.ai/blog/how-ai-has-advanced-chess-players>

# Our goals



- Key concepts of generative AI
- How to enhance existing business workflows
- Navigate the legal and ethical challenges
- Be future-proof!

# **Let's practice!**

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# Innovations that led to Generative AI

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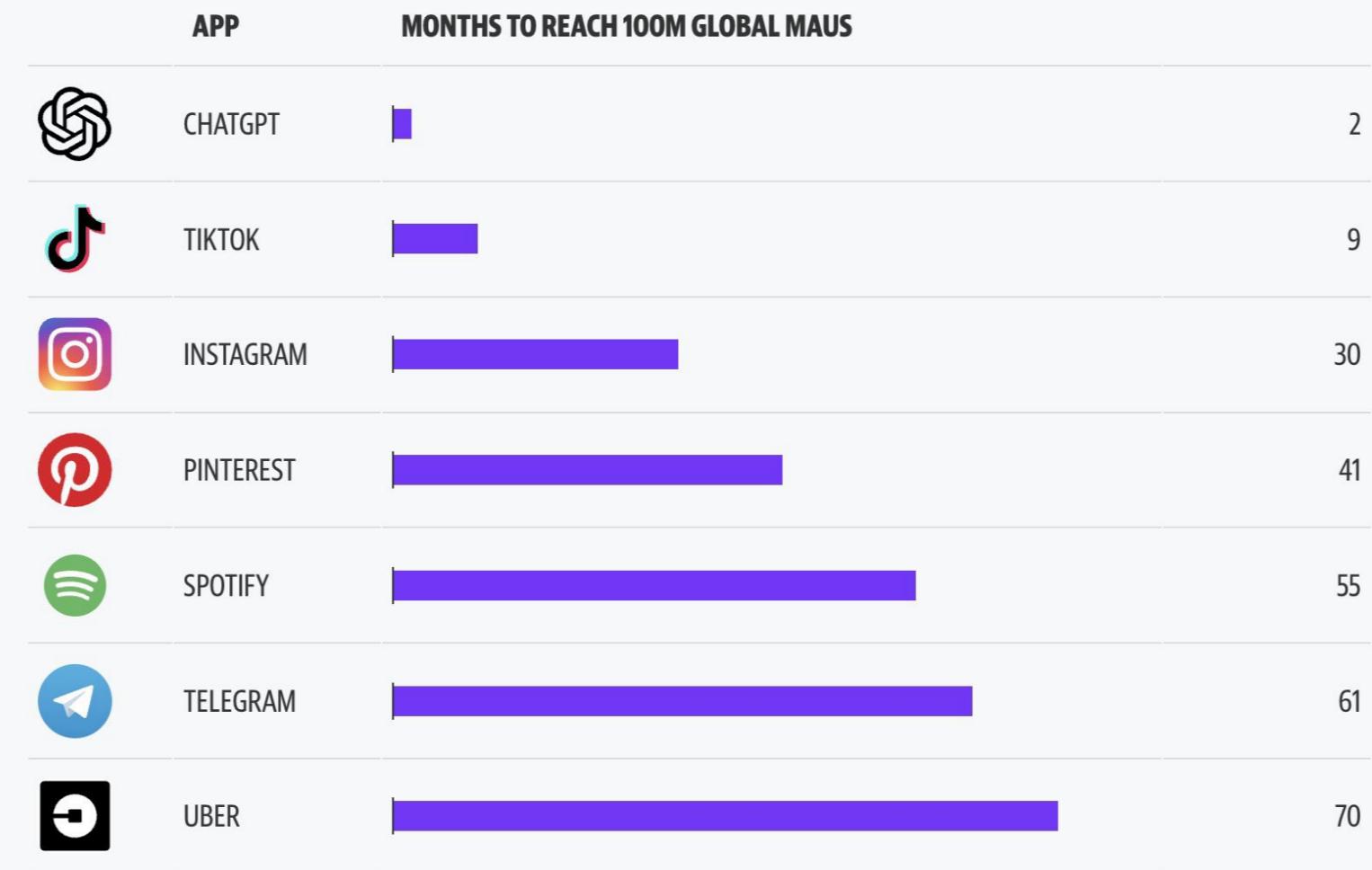
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# The ChatGPT phenomenon

## HOW LONG IT TOOK TOP APPS TO HIT 100M MONTHLY USERS

ChatGPT is estimated to have hit 100M users in January, 2 months after it's launch.  
Here's how long it took other top apps to reach that:



<sup>1</sup> Yahoo Finance

# The ChatGPT phenomenon

## Industry use-cases

- Enhanced customer service
- Personalized marketing
- Innovative product development



## Duolingo

- Duolingo Max allows learners to converse with a generative AI



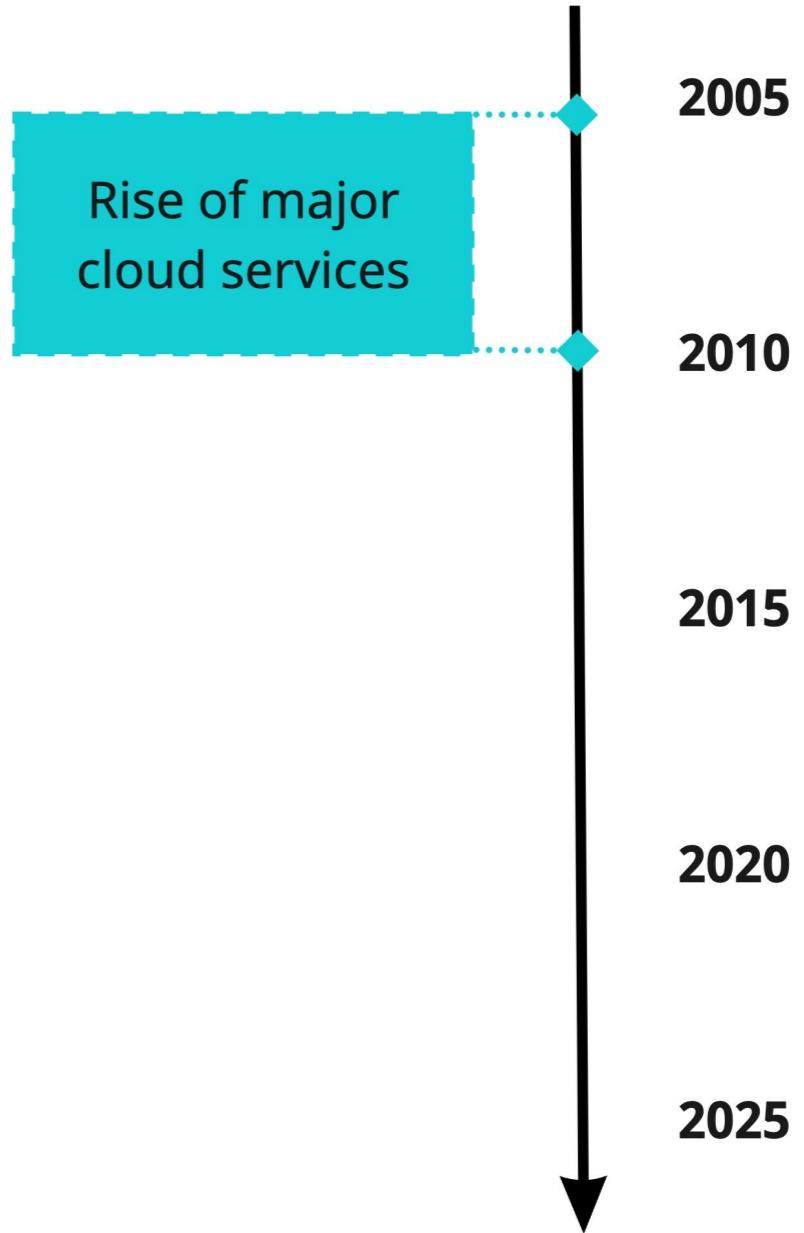
# A landscape of innovation

- Business and technology
- Built on previous successes



# The impact of the cloud

- Store big data in one place
- Immense computing power

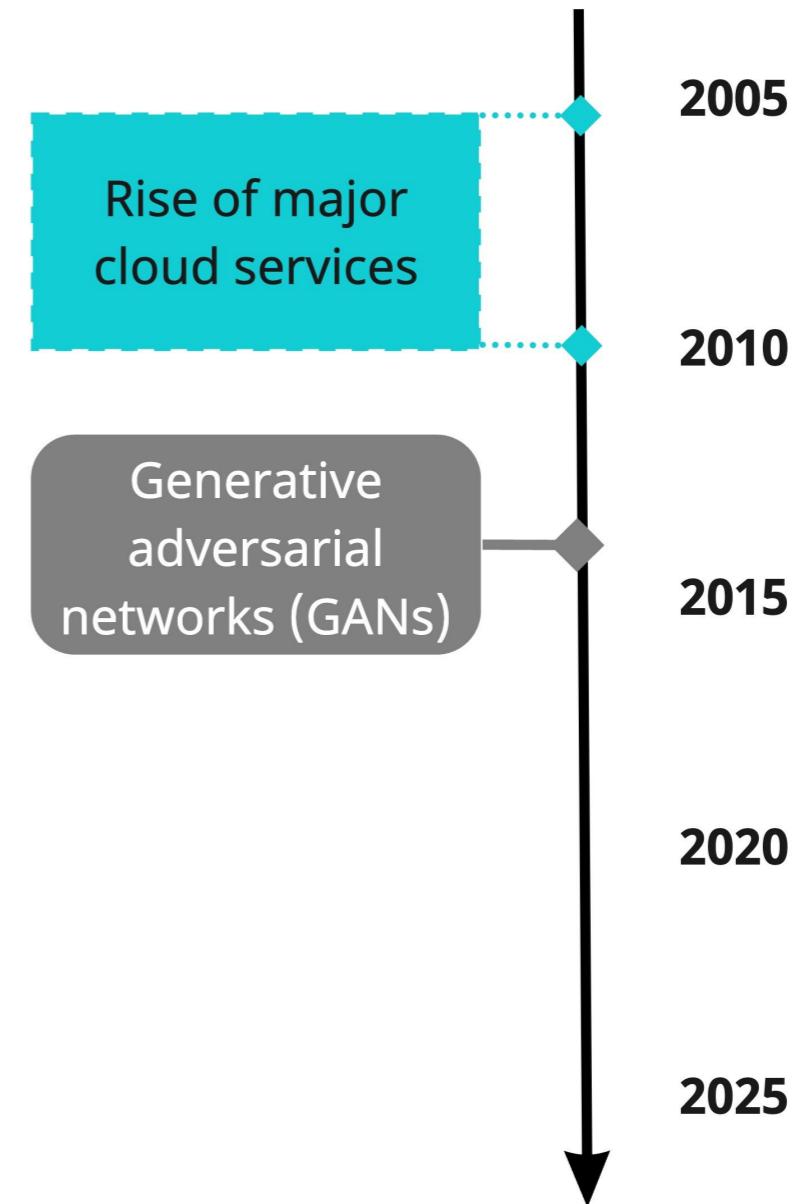


# GANs - Generative adversarial networks

- Competing models
- Photo-realistic image generation
  - "Face aging" was a popular application



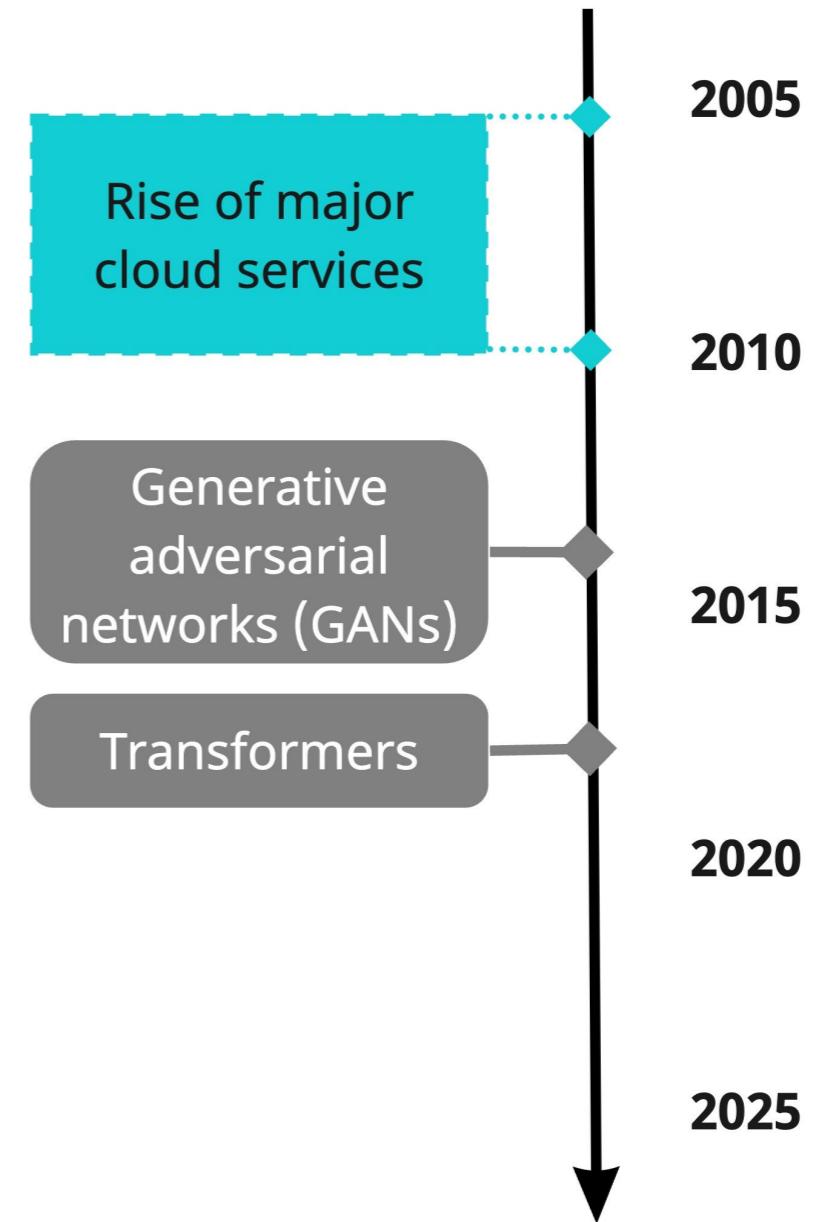
- Revolutionized product design



<sup>1</sup> <https://www.boredpanda.com/old-age-filter-photos-faceapp/>

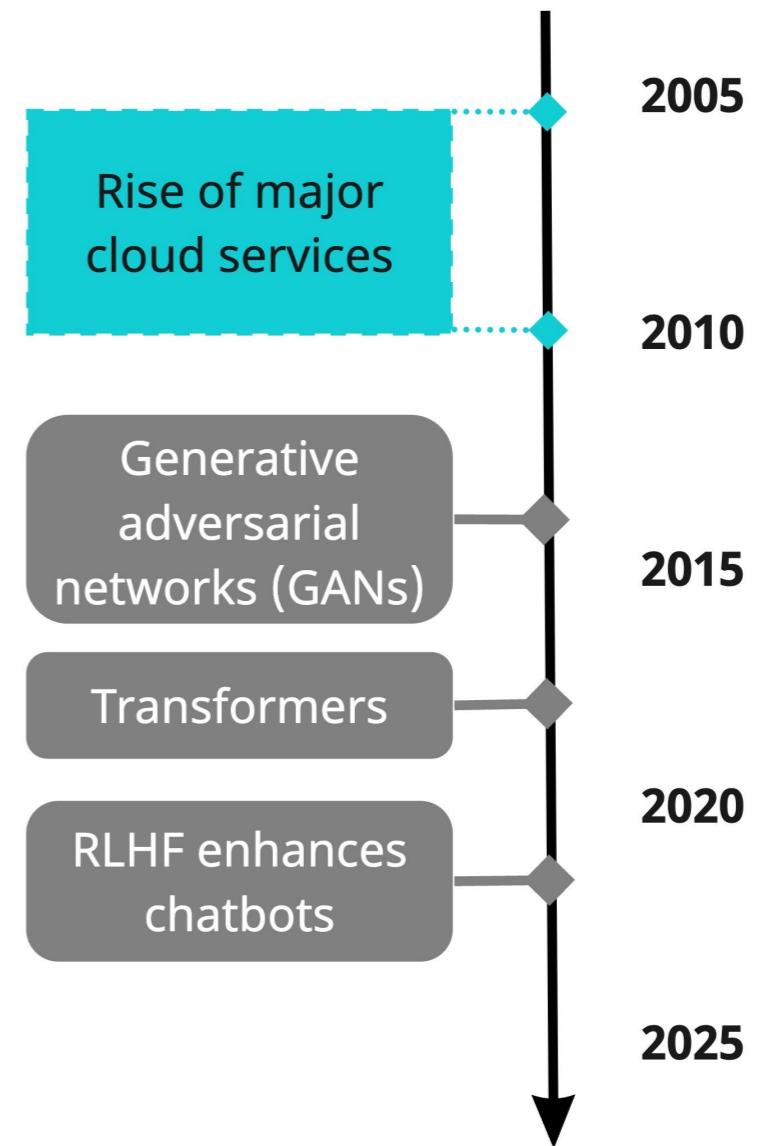
# Transformers

- Published by researchers at Google
- Understand words and their relationships
- Rise of the chatbots



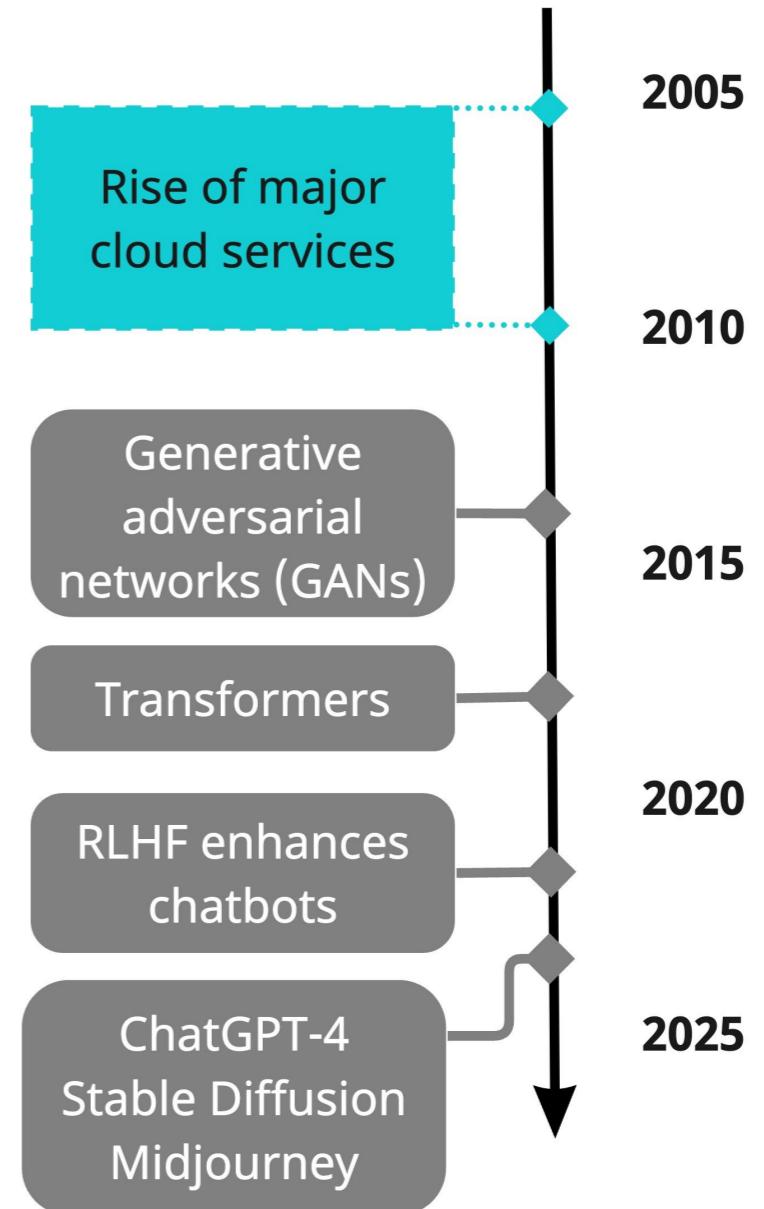
# RLHF: Reinforcement Learning with Human Feedback

- Next level chatbots
- Chatbots learning from a human



# The age of creative machines

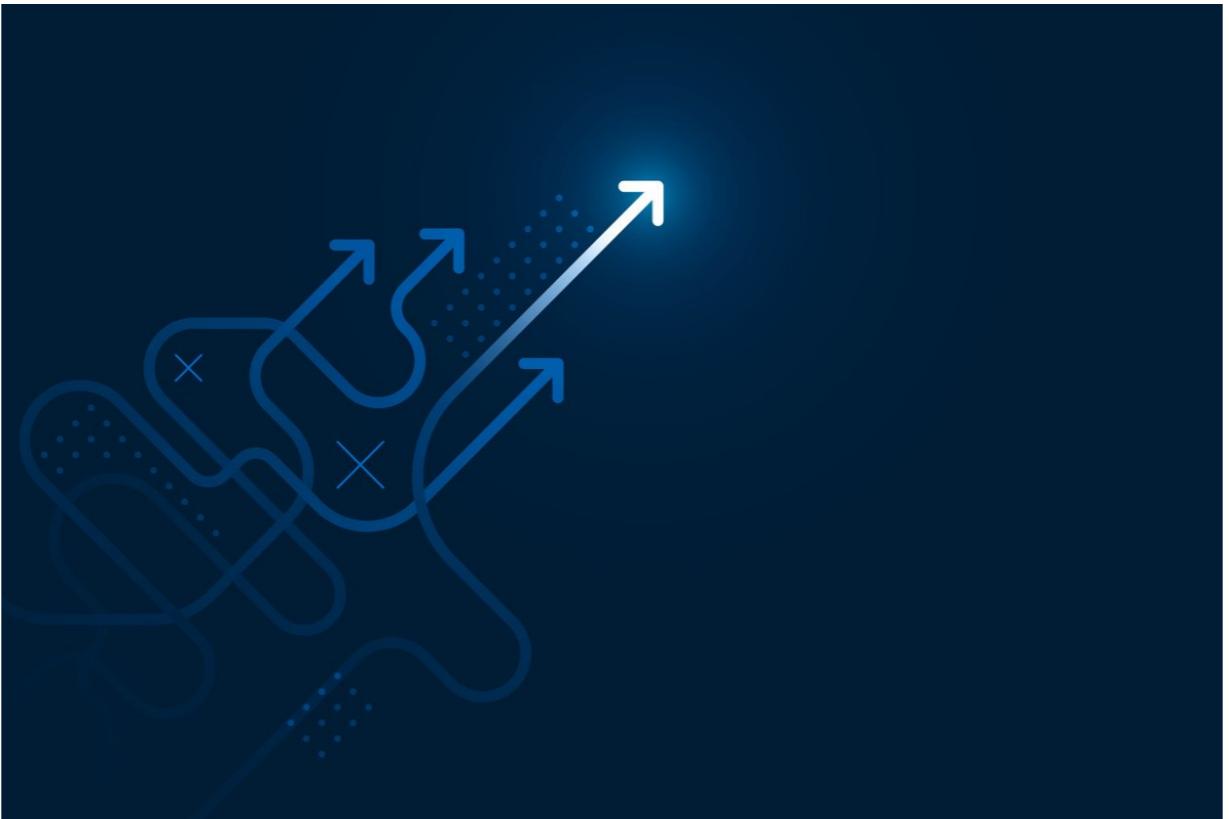
- ChatGPT-4 knows multiple languages
- Midjourney uses stable diffusion to create images from text
  - Prize-winning art!



<sup>1</sup> <https://www.nytimes.com/2022/09/02/technology/ai-artificial-intelligence-artists.html>

# The journey of generative AI

- Testament to human creativity
- Collaboration
- Business acumen



# The stage is set



# **Let's practice!**

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# The progress of generative AI

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# The key players

## Universities



## Companies



## Government

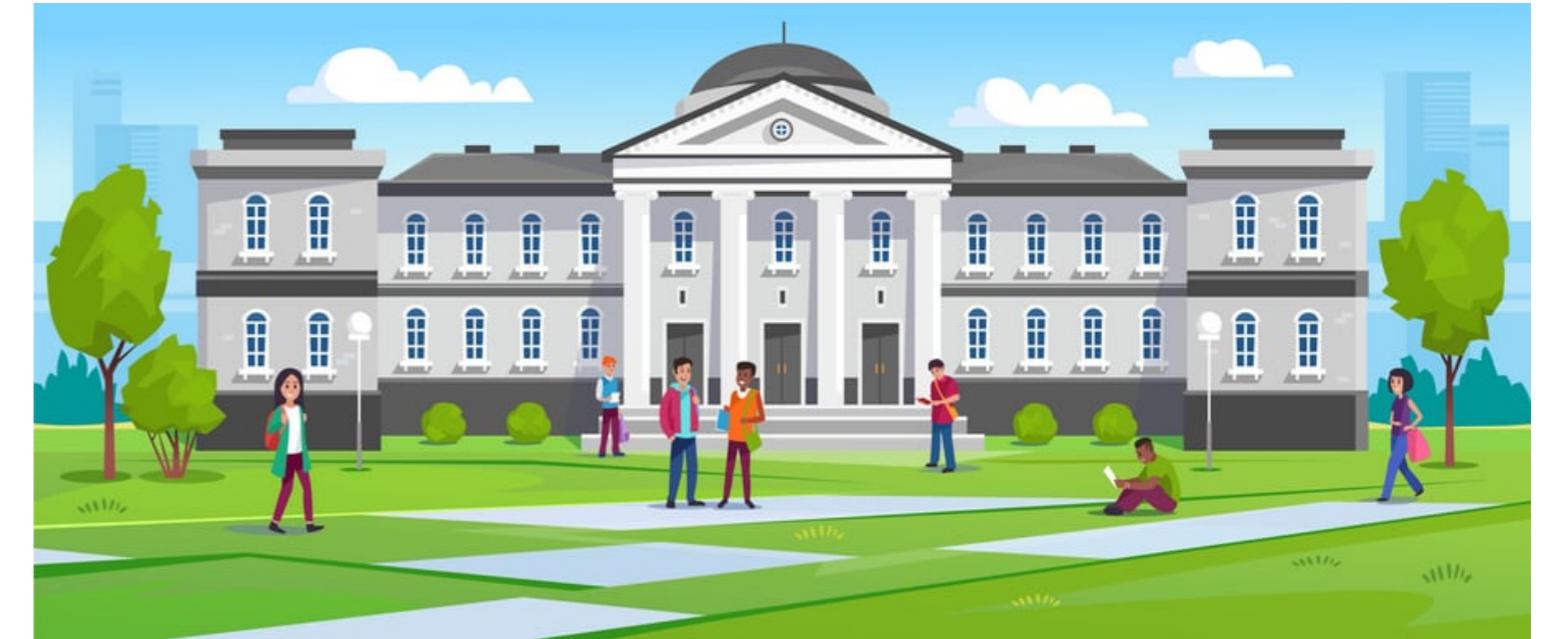


## Open-source communities



# Universities

- Production center of research and theory
  - GANs were developed at University of Montreal
- Training and inspiring researchers
- Collaboration with industry and government



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## Generative Adversarial Nets

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Ian J. Goodfellow, Jean Pouget-Abadie\*, Mehdi Mirza, Bing Xu, David Warde-Farley,  
Sherjil Ozair†, Aaron Courville, Yoshua Bengio‡  
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# Government and civic institutions

- Governments regulate and fund the industry
  - DARPA funds research into making AI explainable
- Civic institutions provide resources for independent projects
  - CIFAR-10 image dataset



# Companies (large and small)

- Generative AI is rapidly adopted
  - to gain market advantage
  - to attract more funding
- Big tech companies specifically
  - produce research
  - develop hardware and infrastructure
  - acquire startups



# Open-source community

- Provide open access
- Lower barrier to entry
- Risks:
  - Projects cannot be maintained indefinitely
  - Malicious use



**LangChain**

**Stanford  
Alpaca**



**TensorFlow**

# Companies and open-source

## Wins

- Developer support
- Talent acquisition
- Feedback from a wide community



## Challenges

- Loss of competitive edge
- Misuse of research/technology



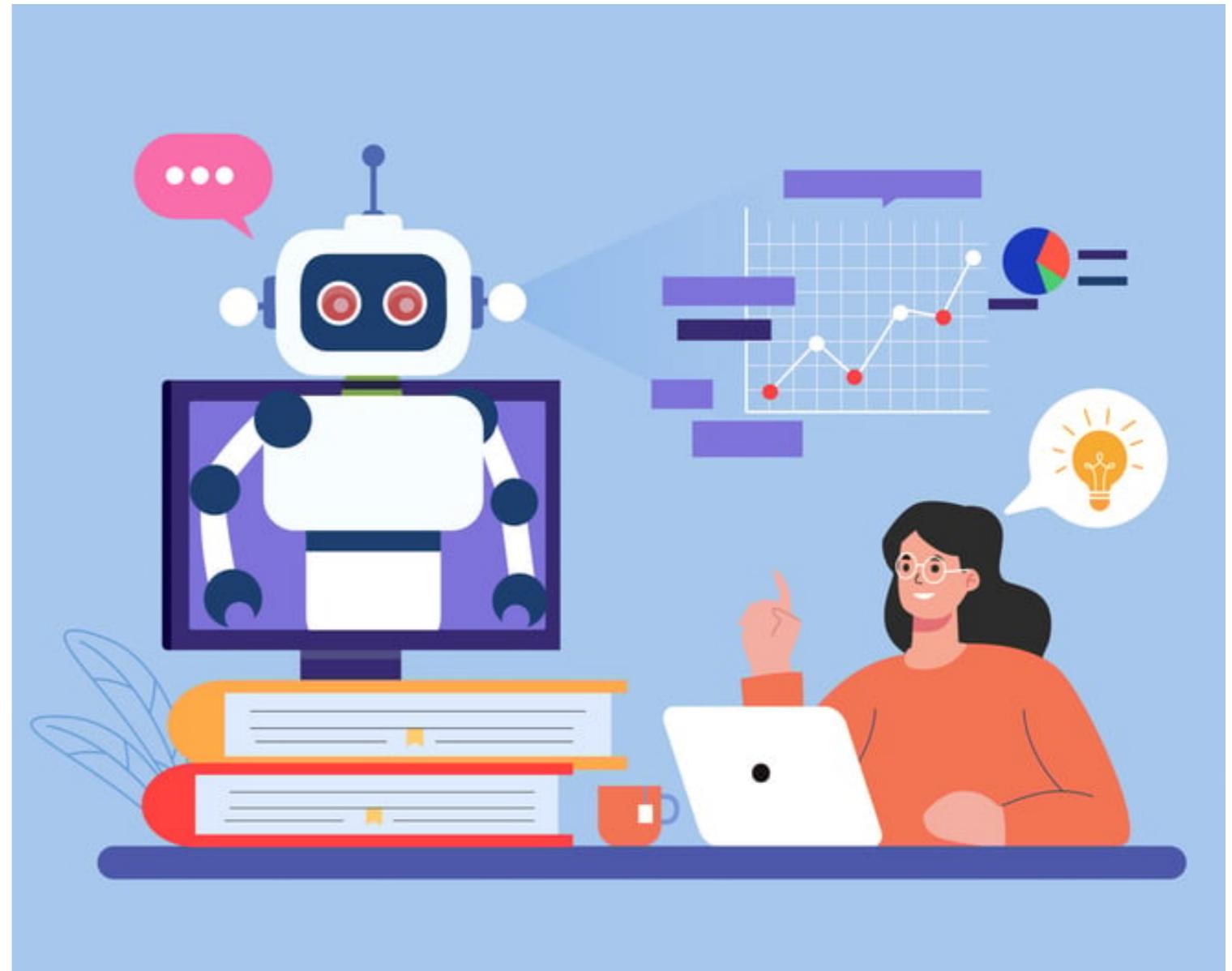
# Going forward

## Accelerators:

- Lower costs of hardware
- Research and development
- Market competition

## Decelerators:

- Technological limits
- Regulation
- Lack of funding or talent



# **Let's practice!**

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