



# Programming with AI

Miguel Alvarez

March 14, 2024



# Artificial Intelligence

What is Artificial Intelligence?

*Systems that mimic human intelligence  
and cognitive abilities*

- Autonomy
- Learning ability

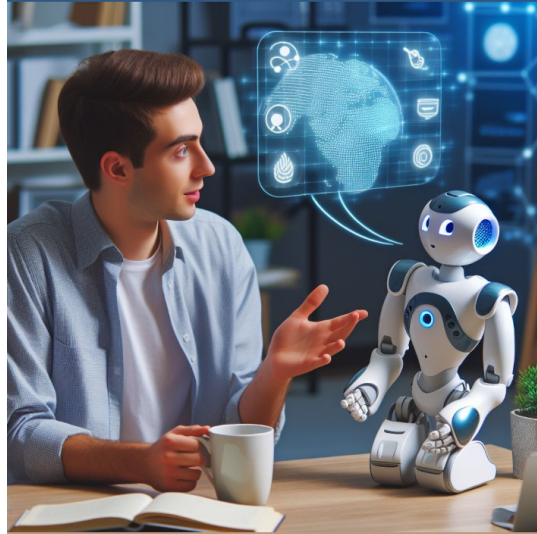




# Artificial Intelligence

## Applications of AI

- Generative AI
  - Text generators
- Dialogue systems (chatbots)





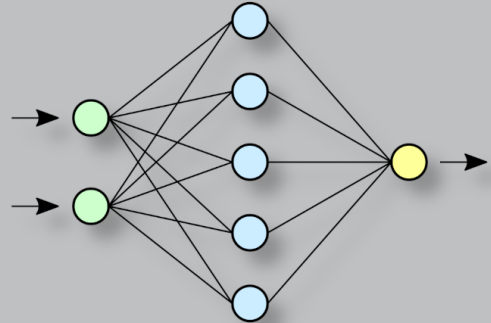
# Artificial Intelligence

First description by Warren McCulloch and Walter Pitts (**1943**)

First use in the computer (*Snarc*) by Marvin Minsky (**1951**)

Rebirth of AI in the fields pattern recognition and machine learning (**2009**)

Release of ChatGPT (*GPT-3*) for the public and subsequent AI hype (**2022**)





# Service Providers

## Which services are capable of programming?

- ChatGPT
- Gemini
- Copilot
- perplexity
- YOU.com
- BLACKBOX AI (optimised for coding)
- Galileo AI (user interfaces)

GitHub and GitLab offer own chatbots.

Example from [YOU.com](#)



Erstelle mir eine Briefvorlage für LaTeX.

Erstelle mir eine Briefvorlage für LaTeX

Hier ist eine einfache Briefvorlage für LaTeX, die du verwenden kannst:

```
\documentclass{letter}

\usepackage[utf8]{inputenc}
\usepackage[ngerman]{babel}

\begin{document}

\begin{letter}{Empfängeradresse}
\opening{Sehr geehrte Damen und Herren,}

Hier kannst du deinen Briefftext einfügen.

\closing{Mit freundlichen Grüßen,}

\end{letter}

\end{document}
```

Diese Vorlage verwendet die **letter**-Klasse und enthält die grundlegenden Elemente eines Briefes, wie die Empfängeradresse, den Briefftext und die Grußformel. Du kannst den Inhalt des Briefes nach Belieben anpassen.

Ask a follow-up...

Smart

Genius 🔒

GPT-4 🔒

Research 🔒

Create 🔒



[Sign in](#) to unlock free premium modes

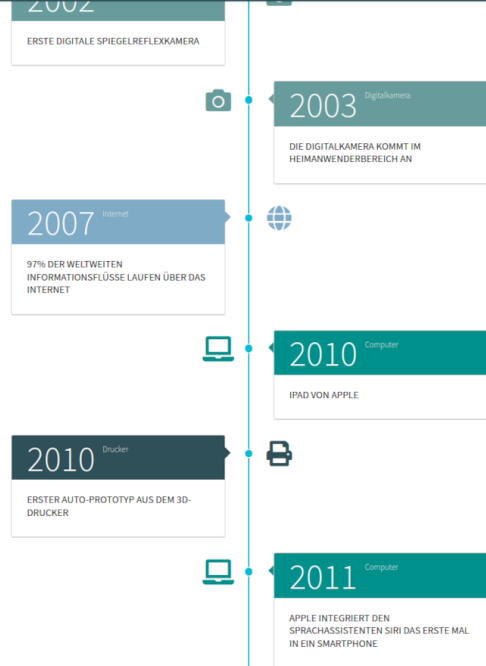


# Why right now?

*Because of ChatGPT?*

- Computer performance
- Digital data storage and exchange

Image from [DMS Factory](#)

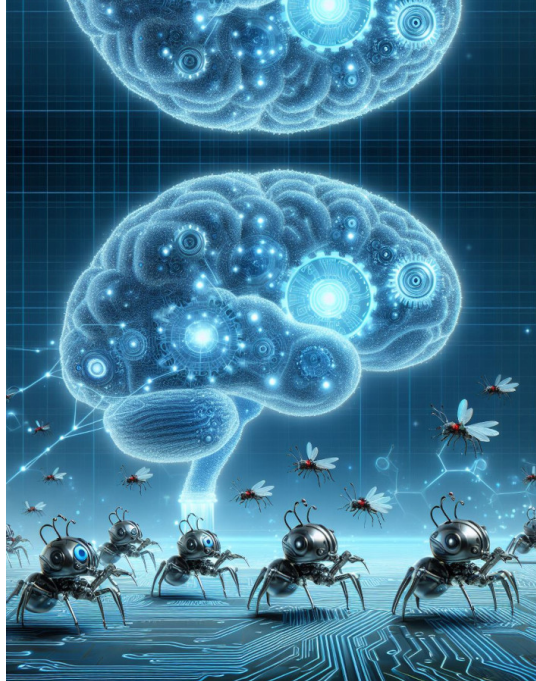




# Use cases

## Using AI for programming.

- simple to complex programming tasks
- for troubleshooting
- generate data sets and tests
- for content generation
  - Text
  - Images
- for brainstorming names





## Be aware!

- Do the tasks contain sensitive or confidential information?
- Hallucinations can also occur at code generation.
- The user must be familiar with the programming language.
- Be transparent about your work: If AI has been used for a task, it should be mentioned.







## Disclaimer

*(Unfortunately) these images  
have been generated using AI*

Artistic images created with [Image Creator](#).

The text content has been improved  
by the use of [DeepL Write](#).



A vibrant, colorful illustration of a forest. The trees have trunks made of rainbow-colored lines (red, orange, yellow, green, blue, purple) that twist and turn. The foliage is dense and green, with some leaves showing rainbow patterns. The overall style is highly detailed and artistic, resembling a digital painting or a complex woodcut. The text "Vielen Dank!" is overlaid in the center-left area.

Vielen Dank!