

What is AI?

Artificial intelligence is a complex catch-all term that is difficult to define. On the one hand, AI refers to a subfield of computer science that seeks to technically emulate human intelligence. On the other hand, how we understand human intelligence is also disputed. In today's usage, the term artificial intelligence mostly refers to various technical applications that collectively automate processes that mimic human capabilities, e.g., human vision (**computer vision**) or human language translation (**natural language processing**).

One method currently in widespread use is called **machine learning**. **Deep learning**, a subfield of machine learning that uses neural networks, is now the basis for many AI applications. Even though the term “neuron” is inspired by the neurons of the human brain, there is a difference between neurons—which are parts of the human nervous system—and technical neural networks. Neural networks are basically very large statistical systems. Data are processed mathematically, one after the other, by different nodes (neurons), which are interconnected like a network. The more complicated the task for the neural network, the more necessary it is to use more layers of neurons and a more complex network

structure. Training data is used, for example, to train neural networks to recognise an object or pattern, such as a face, or predict the most likely next word in a sentence. Although we often speak of machine learning, the term “learning” is misleading, because there is no conscious acquisition of knowledge or thinking on the part of the machine as there is in humans; the systems are just trained to recognise certain patterns. Most of the time, the results they generate take the form of a probability, so, for example, they say that an array of pixels on an image has a 90% probability of representing a human face. The exact patterns by which the neural network “recognises” the characteristics of a face are not always easy to understand. However, the field of explainability of AI within computer science uses various mathematical methods to try to understand as precisely as possible why a neural network arrives at a certain result.

The explainability of AI systems is particularly important when they are used in contexts where decisions have consequences for humans. When AI systems are used, human actors are always involved as well: They are involved in their development, in the selection of training data, in the way they are used, and, of course, in the evaluation and use of AI-generated probabilities. AI use is therefore always also a politi-

cal issue. If you are interested in the use of and politics around AI, please feel free to visit **HIIG** and the **Digitaler Salon**, where we publicly discuss issues around digital politics and AI.

About the AI systems in this game

For the AI Compass, we have selected a number of currently existing AI applications. You can find further information for each of them via the QR code on each AI card. The apps we selected do not represent the mainstream of today's AI systems: We deliberately chose them to show that AI is used in very different areas of society. Many examples illustrate that AI systems are also used in the public interest, e.g., in nature conservation or to reduce a wide variety of everyday barriers for people. The supporting information comes from the operators or manufacturers of the respective AI system. It may be outdated or incomplete, and it may not include critical information about systems, as AI system developers are not required to disclose negative impacts, weaknesses, or limitations of their systems. The AI apps we selected are just a small sample and a snapshot of the currently existing systems, since AI systems continue to be developed and some projects are discontinued so there may not be any information available about them in a few years.

Additionally, not all of the selected applications are based exclusively on AI. Oftentimes, machine learning is only one part of the technology and is combined with other digital systems. If you are interested in a particular case, you can usually get more information from the operators of the systems in question.

Each of the AI systems has one or more hashtags, such as **#botany**, **#free**, and **#opensource**. This means you can quickly relate the subject area the application is used in and also find out whether you can try it out yourself for free as well as view the app's source code.

Scientific project management Dr. Theresa Züger

AI COMPASS

Find creative paths together through the uncharted territory of artificial intelligence

About this game

The game was developed as part of the “AI Explained in Human Terms” research project, which was created through a cooperation of the **Alexander von Humboldt Institute for Internet and Society (HIIG)** with the nonprofit organization **neuland & gestalten** and implemented by the **Büro für Sinn und Unsinn**. Applying a transdisciplinary approach and working together with ordinary citizens and experts, the research project developed explanatory models to make knowledge on the topic of artificial intelligence (AI) more accessible.

More information about the project can be found at:
hiig.de/en/project/ai-explained-in-human-terms

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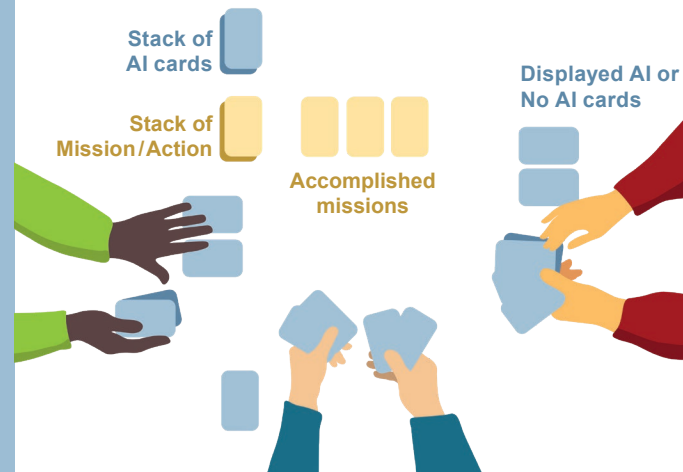
32 AI cards

5 No AI cards

37 Mission/Action cards

Game instructions

What it's about: Artificial intelligence is the talk of the town and the hype about its capabilities is huge. In this card game, you are the Artificial Intelligence Competence Team and get requests from citizens to solve problems in the form of mission cards. Together with the other members of the AI Competence Team, you will have to decide on what problems AI systems can help resolve and when you should try to find a solution without AI.



Goal of the game: Your task is to complete eight missions together. Whoever proposes the most creative and convincing solutions and has the most (AI and non-AI) cards at the end will be awarded employee of the day and win the game.

Preparation: Each player gets four **AI cards** and one **No AI card**. The remaining AI cards are placed face down in a stack in the middle. Next to it, a stack of Mission and Action cards is placed.

Rules of the game: One person begins. Turn over the top **Mission/Action card** and read the card out aloud. This card could be:

1. A Mission card: Your fellow players should each propose a solution to this problem. They can do this by placing either an **AI card** or a **No AI card** face up on the table in front of them and explaining their proposal. The team now discusses and thinks about which solution is the best one. You then decide who to award the round to.* That person may keep the card in front of them permanently from now on and should draw a new AI from the stack into their hand. All other players pick up their rejected cards and hold them in their hands. When the mission has been accomplished, the card remains face up in the middle. From the next round on, each player is not just limited to using

the cards in their hand but can also use the cards laid out in front of them. Note: If a laid-out AI card is #opensource or #free, it can be used by everyone, not just the person who laid it out!

* If you are torn between several solutions, you can, in exceptional cases, award the round to more than one player. They may then leave all of their proposed cards on the table permanently and draw one AI card each from the stack into their hands. If you don't find any of the solutions useful at all, then the mission is “not accomplished” and the card goes back to the bottom of the stack.

2. An Action card: Perform the action and then put the card back at the bottom of the stack. The next person in clockwise order now takes their turn and turns over the next card from the Mission and Action card stack.

End of the game: Keep playing the game until you have completed eight missions. The person with the most cards (AI and No AI) in front of them wins and becomes employee of the day.

Imprint

Publishers:

Alexander von Humboldt Institute for Internet and Society gGmbH and the nonprofit organization neuland & gestalten gGmbH

Game development and design:

Büro für Sinn und Unsinn GbR
Illustrations and portrait “photos” created with the AI app Midjourney

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