


# Die Macht der künstlichen Intelligenz

*KCF Berlin, 27. April 2023*

*Thilo Stadelmann*

Zürich University  
of Applied Sciences

**zhaw** School of  
Engineering



Was ist KI?  
Was kann KI, was nicht?  
Macht und Umgang mit KI

# Was ist Künstliche Intelligenz?



Die Wissenschaft vom  
*Lösen komplexer Probleme*

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Das Erzeugen intelligenten wirkenden  
Verhaltens mit dem Computer

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Seit 2012: Maschinelles Lernen  
(insb. Deep Learning)

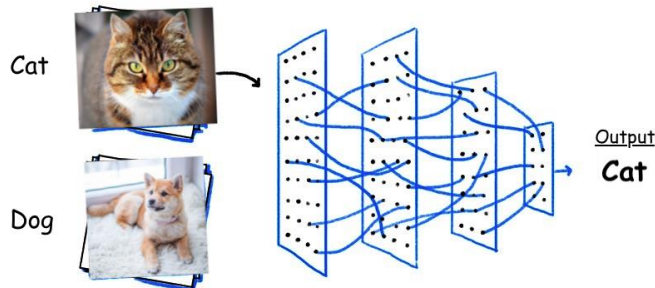


Bild: Rishu Shrivastava

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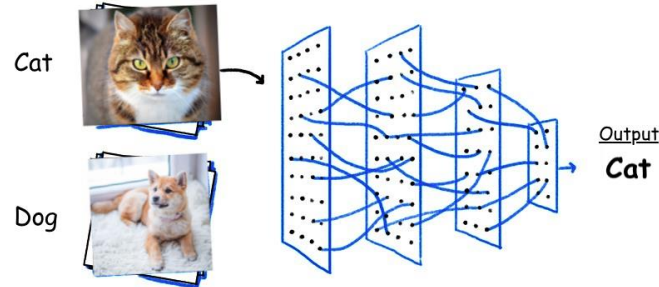


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Seit 2022: Large Language Models

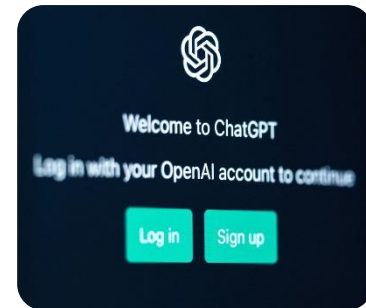


Bild: Wikipedia

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# Wie funktioniert künstliche Intelligenz?



**Text:** Second Law of Robotics: A robot must obey the orders given it by human beings

Quelle: <https://medium.com/nerd-for-tech/gpt3-and-chat-gpt-detailed-architecture-study-deep-nlp-horse-db3af9de8a5d>

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Generated training examples

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

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Example #

Input

Correct output

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...



Unsupervised Pre-training

Input

a robot must

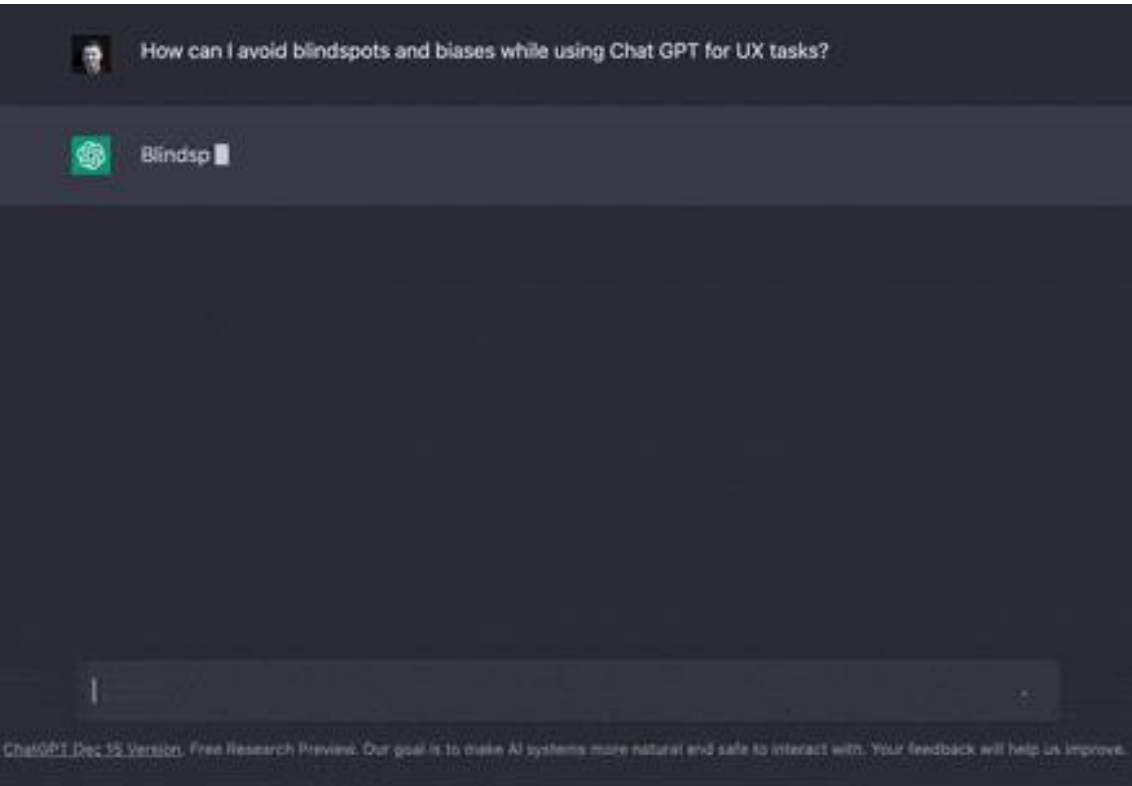


Output

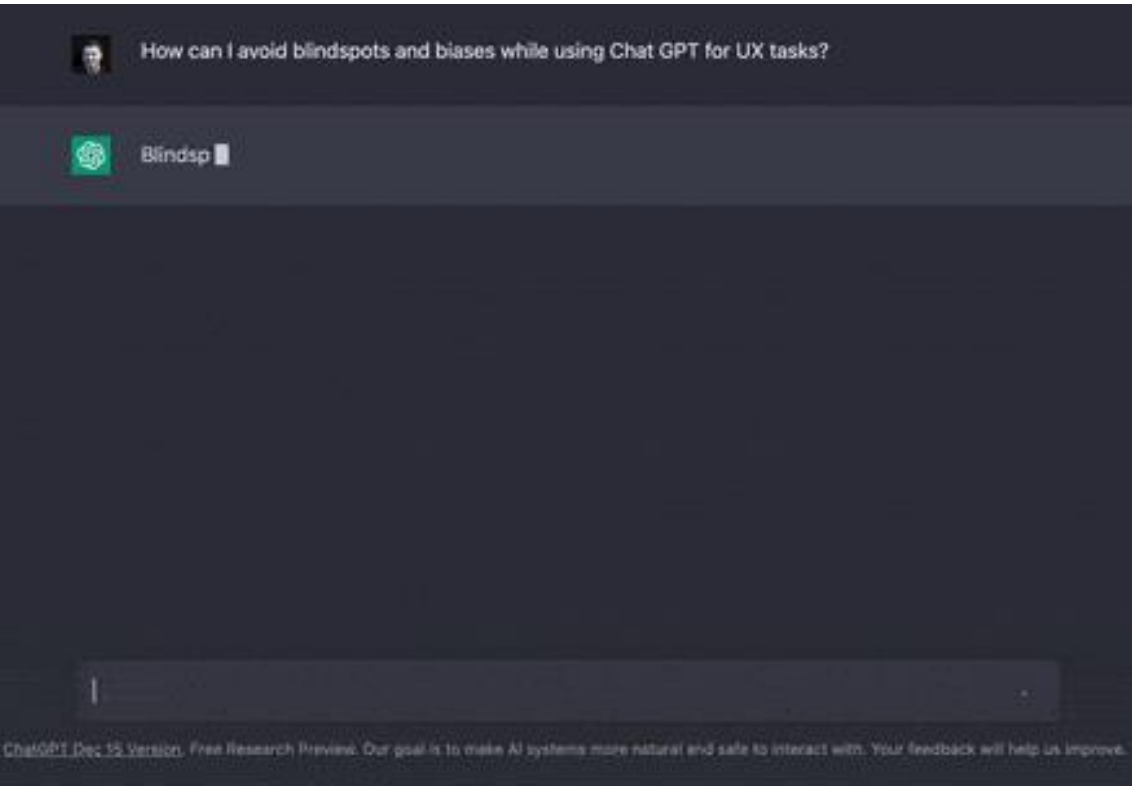
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Mittwoch, 15. Februar 2023 · Nr. 12

Meinung **FINANZ- und WIRTSCHAFT** | 3

## ChatGPT heralds tech revolution

The text generator ChatGPT is breaking growth records and is the current tech hype par excellence. What makes the new tool truly special is its applicability across a broad spectrum. **PASCAL KAUFMANN, THILO STADELMANN, BENJAMIN GREWE**

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Once again, it was the Americans who combined already existing and comparatively unremarkable technology to bring together a novelty with a radically simple user interface. Many investors now anticipate the next shifts in the technology market. Microsoft, for example, is said to have paid \$10 billion for a minority stake in ChatGPT developer OpenAI.

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GPT is therefore capable of being applied in a very general manner compared to earlier AI systems, which is a common denominator with human intelligence. The chatbot thus provides a taste of the first human-like AI. However, ChatGPT still lacks many aspects of human intelligence, especially since it is limited to statistical learning algorithms that calculate which word is most likely to match a given text.

Nevertheless, the potential of such AI systems is immense: future applications aim at high-level office automation, the creation of personalized virtual assistants, fully automated text services, and the creation of fully tailored customer experiences that surpass the capabilities of an attentive customer advisor in many aspects. At this point already, ChatGPT is able to process customer emails or create marketing plans. Professional software developers are reporting dramatic efficiency gains by a factor of five when working with the bot in a team. The Swiss educational landscape in particular is being put under pressure: ChatGPT creates essays, solves classroom assignments, and passes MBA exams. Crisis meetings and fundamental questions are making the rounds within universities and corresponding departments while high school and university students are asking themselves which knowledge and skills will hold any importance in the future. In the same way that critical thinking should be omnipresent when reading books or engaging in discussions in a classroom, it is demanded more than ever

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The next milestone will not consist of GPT-4, five or even higher, but of a bot that teaches itself the human mind through its own voyages of discovery in virtual worlds. In Switzerland particularly, researchers are working on systems that are able to learn with full autonomy, fathom the world and thus become reliable helpers. We would do well to play an active role in shaping this next technological step at the international forefront, since the stakes are high. As a world champion in innovation and a global hotspot for the AI scene, Switzerland is predestined for this.

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Thilo Stadelmann is a Swiss computer scientist and expert in artificial intelligence, with a focus on machine learning and pattern recognition. He is a professor at the Zurich University of Applied Sciences (ZHAW) in Winterthur, Switzerland, where he leads the **Institute of Applied Information Technology**'s research and teaching activities in the field of AI. Stadelmann has a background in **electrical engineering** and computer science, having earned his Ph.D. from the **University of Stuttgart**, Germany. His research interests include multimedia analysis, **natural language processing**, and deep learning, with applications in various domains, such as speech recognition, image processing, and document analysis. In addition to his academic work, Thilo Stadelmann has been involved in various research projects and collaborations with industry partners, helping to advance AI applications and develop practical solutions to real-world problems. He is also a frequent speaker at conferences and events, sharing his insights and expertise in the field of artificial intelligence.

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Nevertheless, the potential of such AI systems is immense: future applications aim at high-level office automation, the creation of personalized virtual assistants, fully automated text services, and the creation of fully tailored customer experiences that surpass the capabilities of an attentive customer advisor in many aspects. At this point already, ChatGPT is able to process customer emails or create marketing plans.

Professional software developers are reporting dramatic efficiency gains by a factor of five when working with the bot in a team. The Swiss educational landscape in particular is being put under pressure: ChatGPT creates essays, solves classroom assignments, and passes MBA exams. Creative meetings and fundamental questions are making the rounds within universities and corresponding departments while high school and university students are asking themselves which knowledge and skills will hold any importance in the future. In the same way that critical thinking should be omnipresent when reading books or engaging in discussions in a classroom, it is demanded more than ever

when it comes to ChatGPT and its peers. This is due to one of the weaknesses of the transformer models which lies in the inability to distinguish between fact and fiction, since word sequences are generated only on the basis of probability. The contribution of ChatGPT lies in immense usefulness, and generative AI will continue to surprise us in this direction in the coming months.

It has already begun: Microsoft announced to integrate ChatGPT into its Internet search, while at nearly the same time Google announced to revolutionize Google search with its own bot. However, the demonstration of the latter went wrong in several ways, much to the detriment of Alphabet's share price. It will be interesting to see what this will mean for the entire search engine business. After all, it is much less easy to weave an advertising link into a distilled answer than into a list of search results, and an answer from the bot costs considerably more computing power than a query of the search index. The by far most lucrative business in the tech industry is threatened with disruption. Users, on the other hand, will see improvements in their lives that can enrich their knowledge databases via the Internet and reference sources.



«The most lucrative business of the tech industry is threatened by disruption.»

### A utility revolution

It is possible that we are witnessing a historic birth moment comparable to that which precedes almost every technology revolution: the emergence of the first general-purpose artificial intelligences, made possible by the various developments in the field of generative AI in recent years. The forerunners of these are systems that generate images at the push of a button (e.g. Stable Diffusion), "DALL-E" and the currently rapidly spreading text generator "ChatGPT".

Once again, it was the Americans who combined already existing and comparatively unremarkable technology to bring together a novelty with a radically simple user interface. Many investors now anticipate the next shifts in the technology market. Microsoft, for example, is said to have paid \$10 billion for a minority stake in ChatGPT developer OpenAI.

### AI-Hotspot Switzerland

At the same time, current approaches are fundamentally limited and tend to lead away from an understanding of intelligence rather than contribute to it. They devour vast amounts of data and computing power, hallucinate results based on statistical recombinations, and render the world based only on text modules without any underlying comprehension. They have no specific circuits for planning and reasoning. An understanding of the world gained through physical interaction, a desire to discover new things coupled with other ingredients for resource-efficient learning is necessary for a genuine technological revolution.

The next milestone will not consist of GPT-4, five or even higher, but of a bot that teaches itself the human mind through its own voyages of discovery in virtual worlds. In Switzerland particularly, researchers are working on systems that are able to learn with full autonomy, fathom the world and thus become reliable helpers. We would do well to play an active role in shaping this next technological step at the international forefront, since the stakes are high.

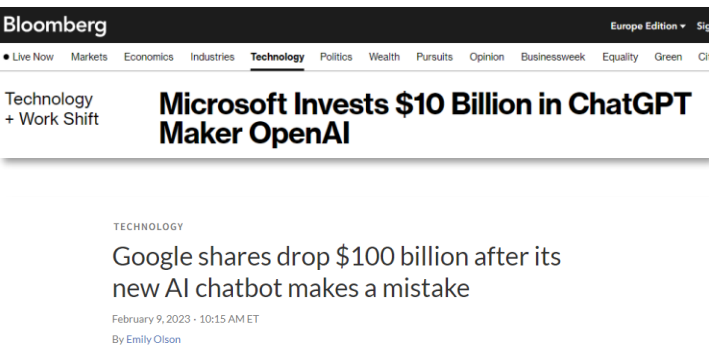
AI-Hotspot for the AI scene, Switzerland is predestined for this.

Pascal Kaufmann, Lab42; Co-Authors Prof. Thilo Stadelmann, ZHAW; Prof. Benjamin Greve, ETH.

# Zum Umgang mit KI (1)

## Die Macht der KI

### Macht



The image shows a screenshot of a Bloomberg news article. The top navigation bar includes the Bloomberg logo, 'Europe Edition', and a list of categories: Live Now, Markets, Economics, Industries, Technology, Politics, Wealth, Pursuits, Opinion, Businessweek, Equality, Green, and Global. The main headline reads 'Microsoft Invests \$10 Billion in ChatGPT Maker OpenAI'. Below this, there is a sub-headline 'Technology + Work Shift'. A second article preview is visible below, with the headline 'Google shares drop \$100 billion after its new AI chatbot makes a mistake', dated 'February 9, 2023 · 10:15 AM ET', and by 'Emily Olson'.

**Bloomberg** Europe Edition

• Live Now Markets Economics Industries **Technology** Politics Wealth Pursuits Opinion Businessweek Equality Green Global

Technology + Work Shift

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...Gutes zu Tun: technische Gründe

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Lesezeit: 13 Min. In Pocket speichern 208

(Bild: PHOTOCREO Michal Bednarek/Shutterstock.com)

05.04.2023 16:28 Uhr | Developer  
Von Silke Hahn

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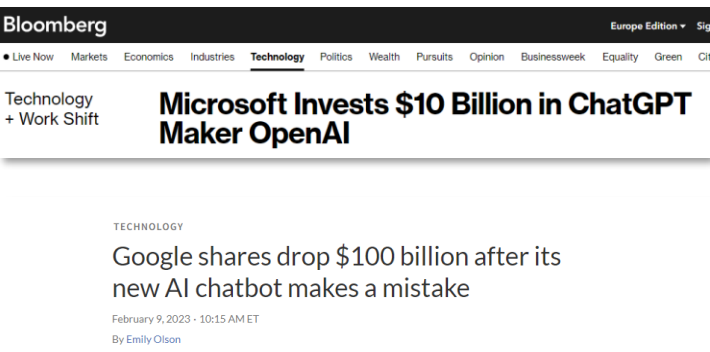


# Zum Umgang mit KI (1)

## Die Macht der KI

Macht

...Gutes zu Tun: technische Gründe



**KI Nutzen, ausprobieren → für Ideen und Prioritäten Gottes Stimme hören**

# Zum Umgang mit KI (2)

## Die Kraft einer geistlichen Weltsicht

Angst



# Zum Umgang mit KI (2)

## Die Kraft einer geistlichen Weltsicht

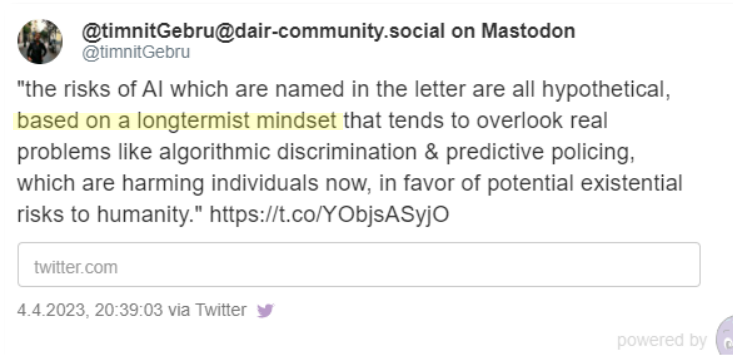
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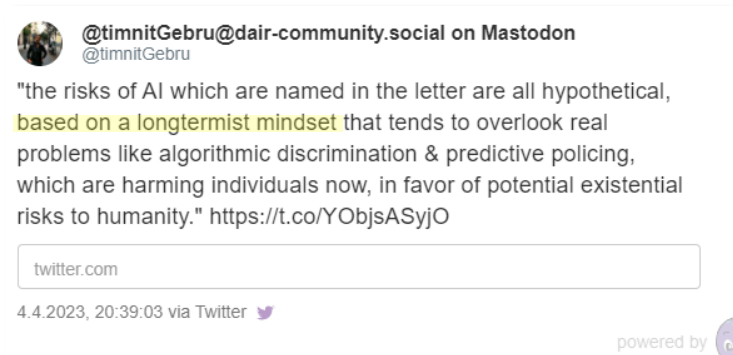
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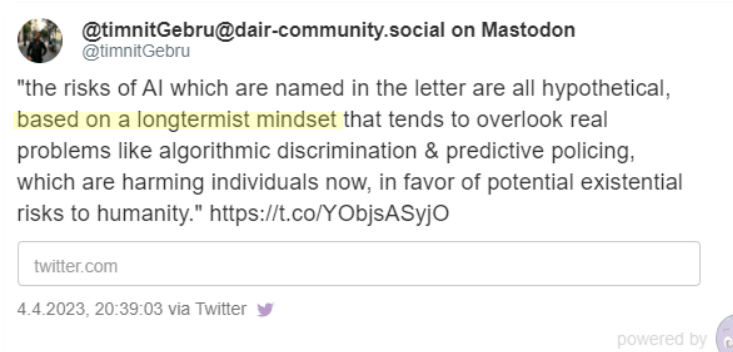
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# Zum Umgang mit KI (2)

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Angst



## Elon Musk kündigt Konkurrenz für KI-Software ChatGPT an

Die neue KI soll nach Musks Worten „maximal wahrheitssuchend“ sein. Der Tech-Milliardär hatte zuletzt vor Falschinformationen durch KI gewarnt.

18.04.2023 • Update: 18.04.2023 - 04:43 Uhr • 3 Kommentare • 2 x geteilt



Elon Musk

Der Tesla-Chef will den KI-Markt aufmischen.  
Foto: Reuters)



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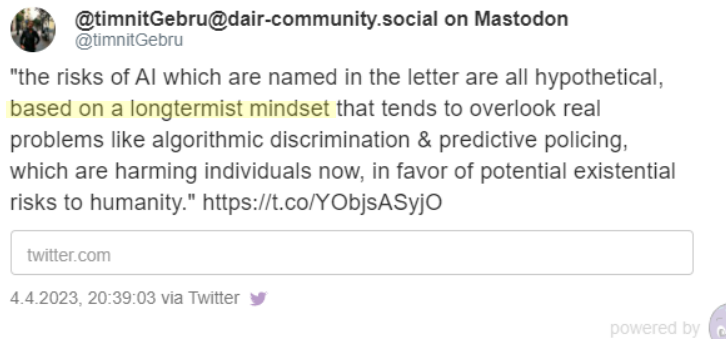
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Foto: Reuters

Angst



Hoffnung begründen → nur der Glaube liefert letzte Argumente in komplexen Zeiten

# Fazit

- **KI** unbedingt **ausprobieren** – herausfinden, wie sich im eigenen Bereich Gutes tun lässt
- **Sprache finden** für die geistliche Sicht & Hoffnung – sonst ist das Bild der Wirklichkeit unvollständig
- In der zukünftigen Flut perfekter, generierter Inhalte – zählt **echte menschliche Gemeinschaft**

Weiterführende Ressourcen zur Vertiefung des Vortrags online!



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Ressourcen: <https://stdm.github.io/kcf-2023-resources/>

