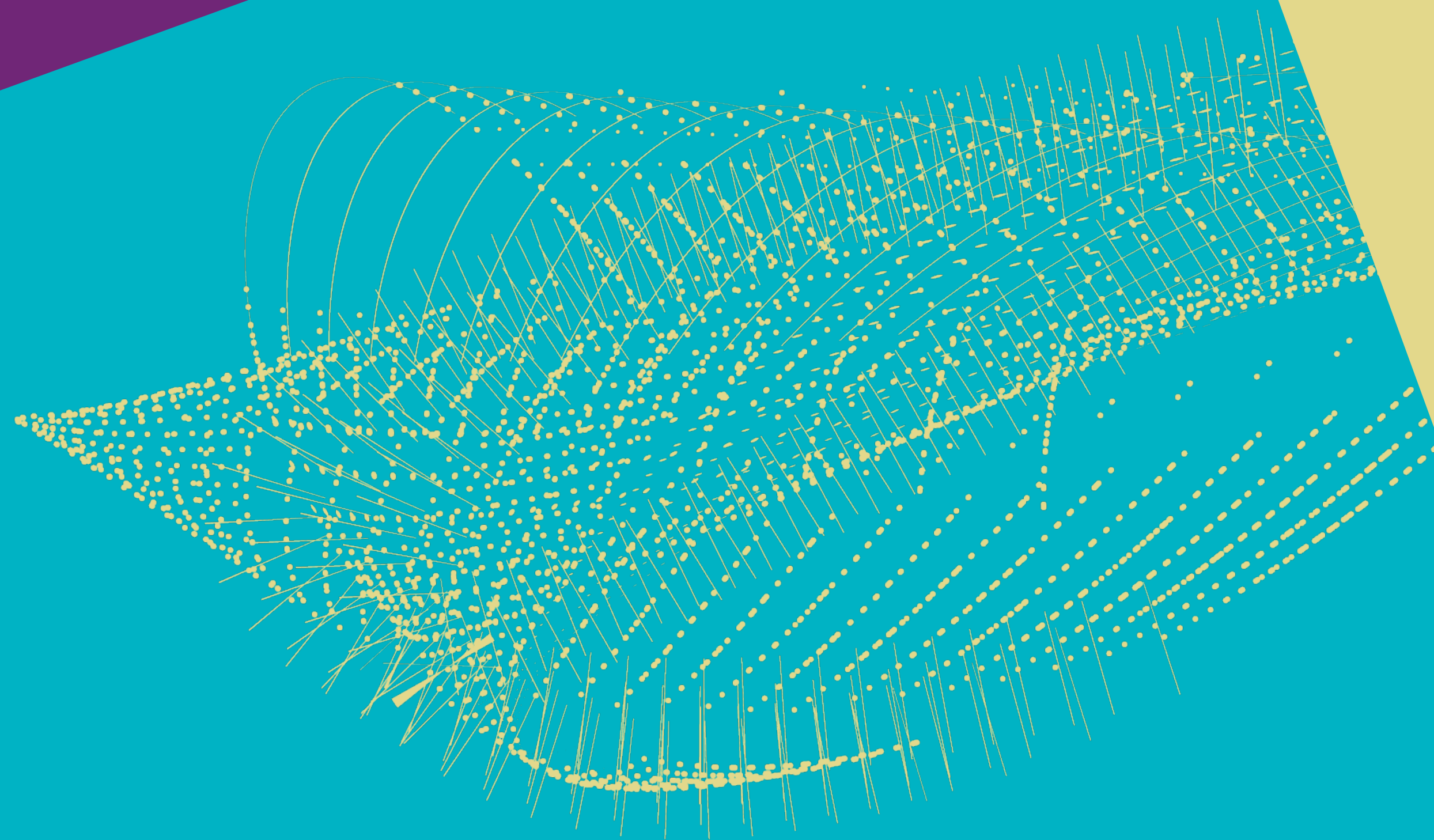




GENERATIVE AI
AWARENESS

Introduction

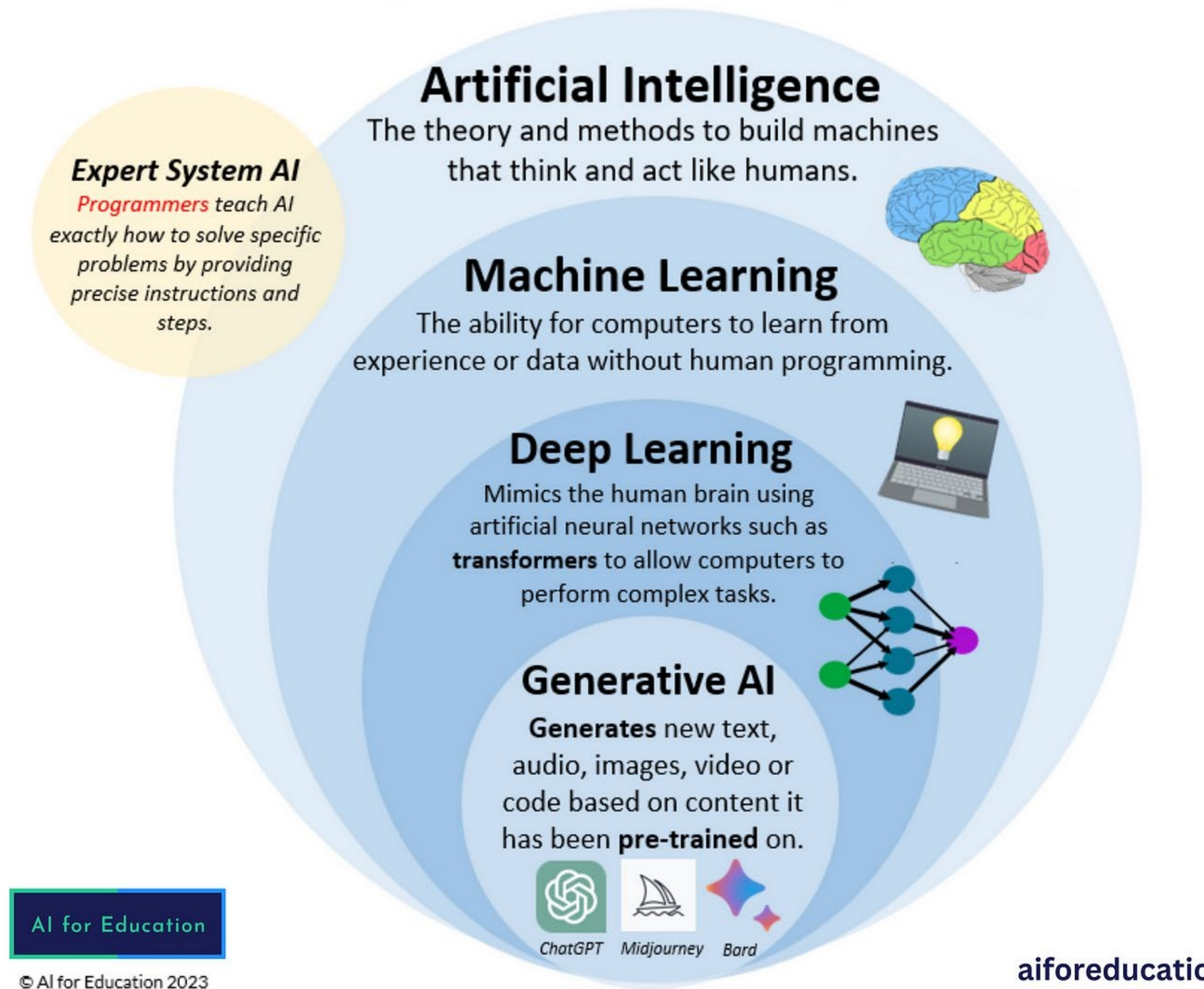
- GenAI is relatively new technology
 - With possibilities & risks
- @Nikhef: investing in Mistral licenses
 - Meets concerns about privacy and information security



Still, safe usage needs awareness

Defining Generative AI

To understand generative artificial intelligence (GenAI), we first need to understand how the technology builds from each of the AI subcategories listed below.



GenAI has great potential for scientific work

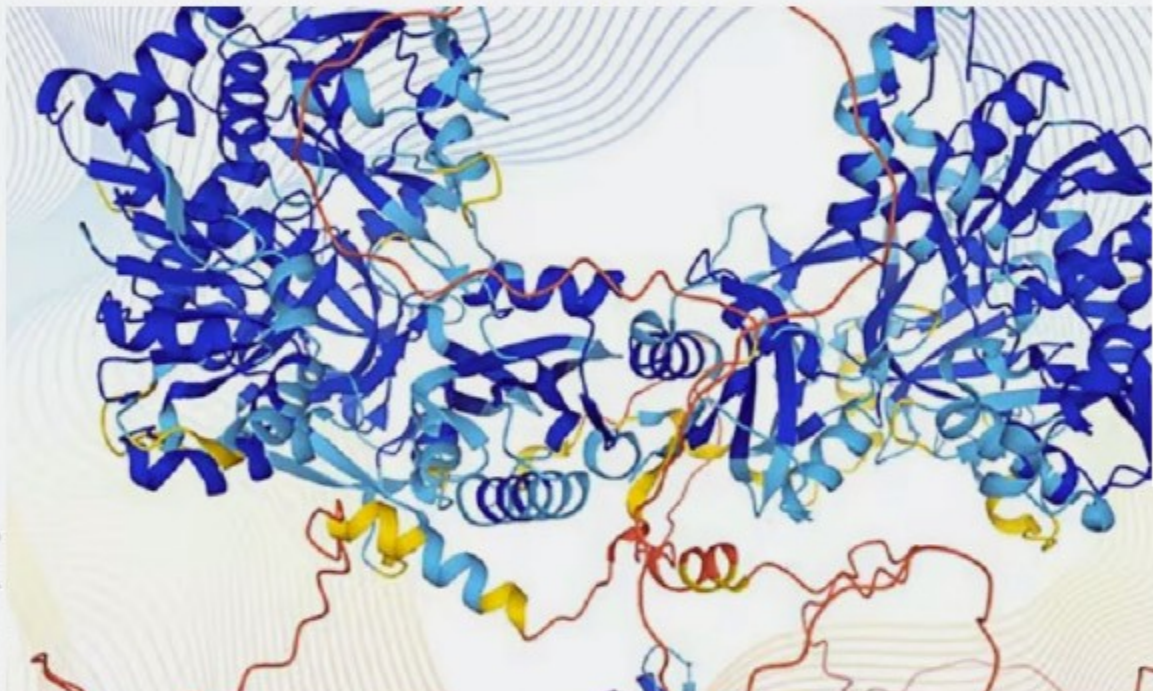
ars TECHNICA BIZ & IT TECH SCIENCE POLICY CARS GAMING & CULTURE STORE

MODIFYING THE BUILDING BLOCKS —

DeepMind research cracks structure of almost every known protein

Breakthrough by AI company will reduce time required to make biological discoveries.

MADHUMITA MURGIA, FINANCIAL TIMES · 7/29/2022, 7:01 PM



Lab Manager
Run Your Lab Like a Business

Enlarge / An image of the AlphaFold comp

News Topics Events Magazine Products

NEWS

Accelerating Climate Modeling with Generative AI

Researchers use GenAI to create a model that can predict climate patterns 25 times faster than state-of-the-art models

Written by University of California - San Diego

Dec 3, 2024 | 2 min read

Microsoft Research Blog

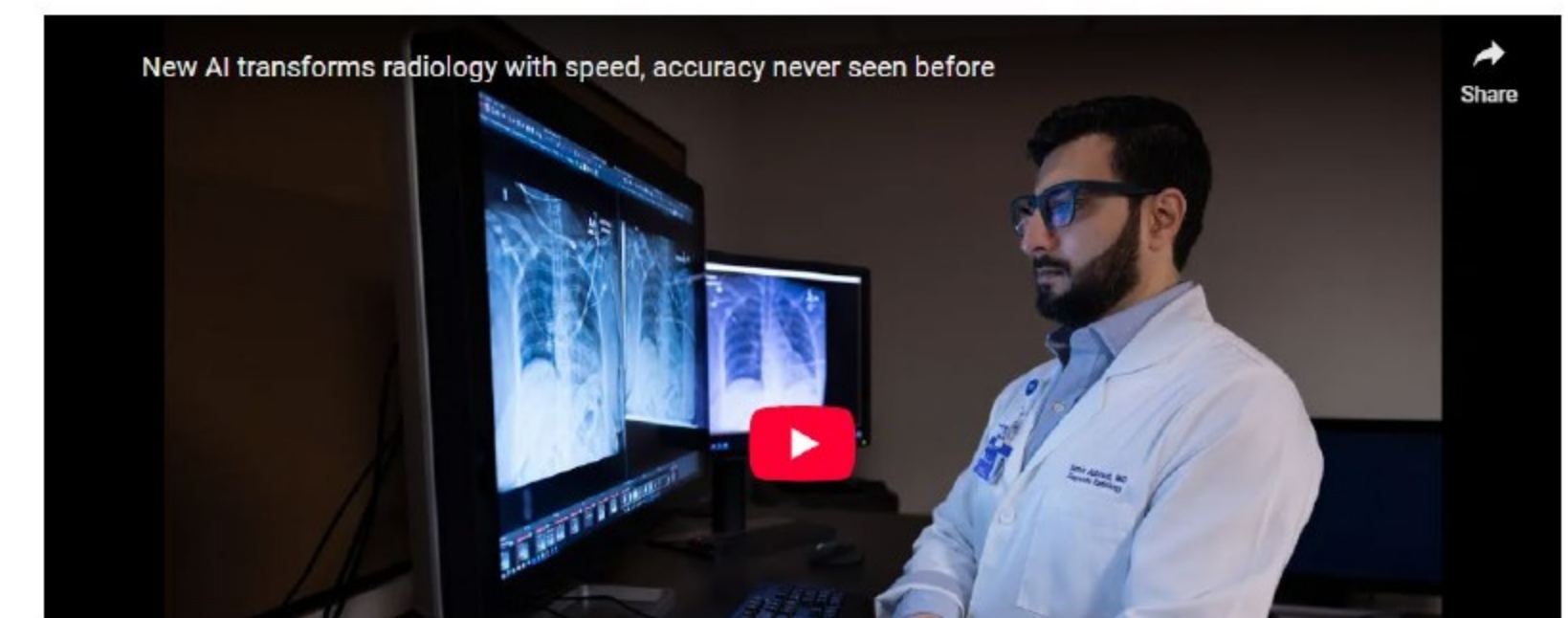
MatterGen: A new paradigm of materials design with generative AI

Published January 16, 2025

New AI transforms radiology with speed, accuracy never seen before

In a major clinical study, the tool boosted productivity by up to 40% without compromising accuracy

May 29, 2025 | By Ben Schamisso



And GenAI can assist with...



assistance in
writing and
correcting your
grammar



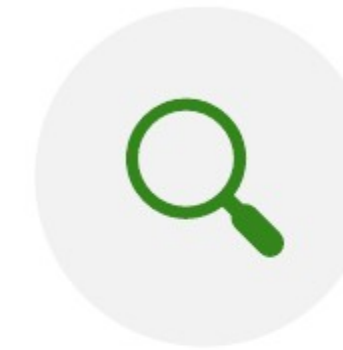
increasing
accessibility:
e.g. providing the
option to talk to
your computer
instead of write
(dyslexics etc.),
simplifying difficult
texts, translating
texts



taking over (parts
of) menial, time-
consuming tasks:
writing
transcriptions,
summarizing texts,
creating
appointments etc.



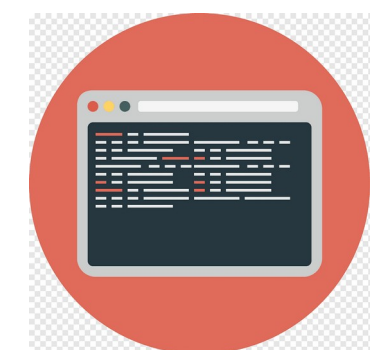
serving as a
brainstorming
companion



can identify
patterns in large
documents or texts
that are difficult to
spot by eye

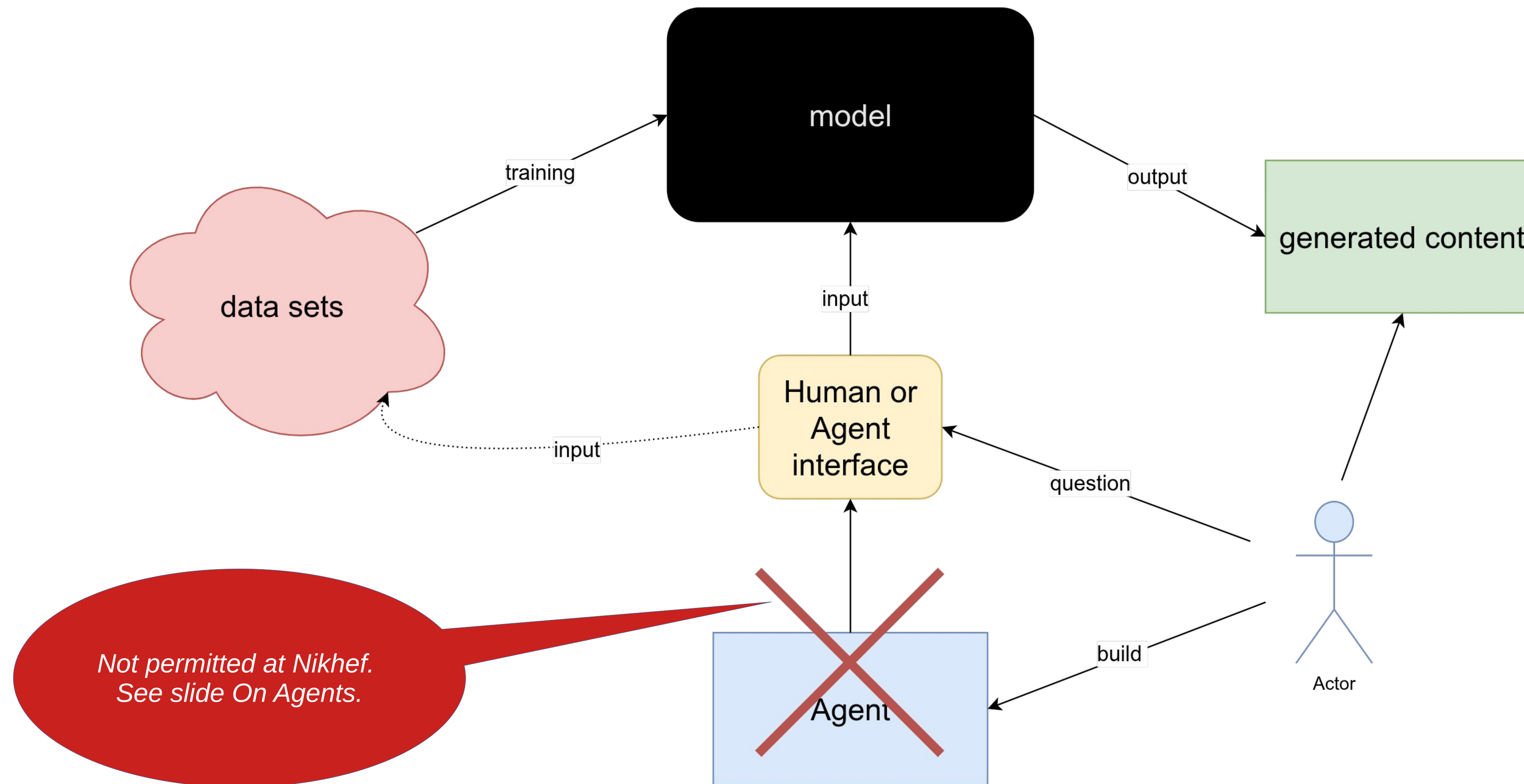


... and more!



coding

Components in GenAI



Strengths

- Pattern recognition
- Handling repetitive and time-consuming tasks
- Creativity & content creation

Limitations

- Risk of inaccuracy (Hallucinations)
 - *Critically assess content*
- Originality and deep reasoning
 - *No replacement human thinking*
- Dependence on training data
 - *User input → training, copyrights?*
- Limited knowledge and context
 - *Fixed knowledge base, biases, recent?*
- Privacy risks
 - *No personal opr sensitive data!*

On AI Agents

- Disabled:

- Can easily run wild
- Can cause excessive load on systems
- Can consume excessive AI resources (costs)

- Not permitted:

- Run agents 'elsewhere'
 - Against Nikhef infrastructure
 - Using Nikhef credentials (username/password, key)

Sharing credentials is **forbidden**
by our Acceptable Use Policy:
<https://www.nikhef.nl/aup>

Guidelines for responsible use

- Based on values and principles *lawfulness, integrity, independence, transparency, conscientiousness, sustainability*
- 1) Be careful about what you input into any GenAI model
Particularly privacy data, confidential data, unpublished research, proprietary data
- 2) Critically evaluate AI-generated content
Content may be inaccurate, misleading, biased
- 3) Ensure transparency when using GenAI
Disclose use of GenAI
- 4) Understand the key features of the GenAI model you are using
Origins, capabilities, limitations, terms of use

Guidelines for responsible use - 2

5) Stay informed about GenAI's changing capabilities and limitations

Rapid evolution of technology & regulations

6) Consider how your use impacts the environment

Environmental impact

7) Consider how your use impacts society

Ethical considerations, inclusivity, fairness

Checklist

- ☐ The use of GenAI will meaningfully support my work, and I am not using GenAI just for convenience or without a specific benefit in mind (See also point 6 of the guidelines).
- ☐ I made sure I am not entering any sensitive, confidential, or personal data (See Box 5).
- ☐ I have considered the environmental impact of using GenAI for this task, and I believe the benefits of using GenAI here outweigh the associated resource use.
- ☐ I have added a disclosure specifying my use of it. (Disclosure is necessary for all types of documents (for example summaries or minutes), even for internal use!)
- ☐ I have verified that the GenAI output is accurate, cross-checked with credible sources, and free from misleading or biased information.

Checklist - 2

Specific cases:

- ☐ (When you also have an affiliation with or work with another organisation) I am aware of, and comply with, any possible additional rules and regulations on GenAI use set by the organisation I am affiliated with.
- ☐ (When using GenAI in any type of research) I have checked that my use of GenAI follows the standards of good scientific practice as outlined in the Netherlands Code of Conduct for Research Integrity.
- ☐ (When writing a research paper) I have checked the journal or publisher's policies on GenAI use and ensured that my use of GenAI complies with their requirements.

Summary

Feel free to use GenAI, but use it wisely and responsibly

Email: <mailto:ai-stuurgroep@nikhef.nl>

NWO-I living guidelines:

- <https://intern.nwo-i.nl/en/career-development/digital-competence-centre-dcc/guidelines-generative-ai/nwo-i-guidelines-genai>
- <https://intern.nwo-i.nl/loopbaan-ontwikkeling/digitaal-competentie-centrum-dcc/richtlijnen-generatieve-ai/nwo-i-richtlijnen>