

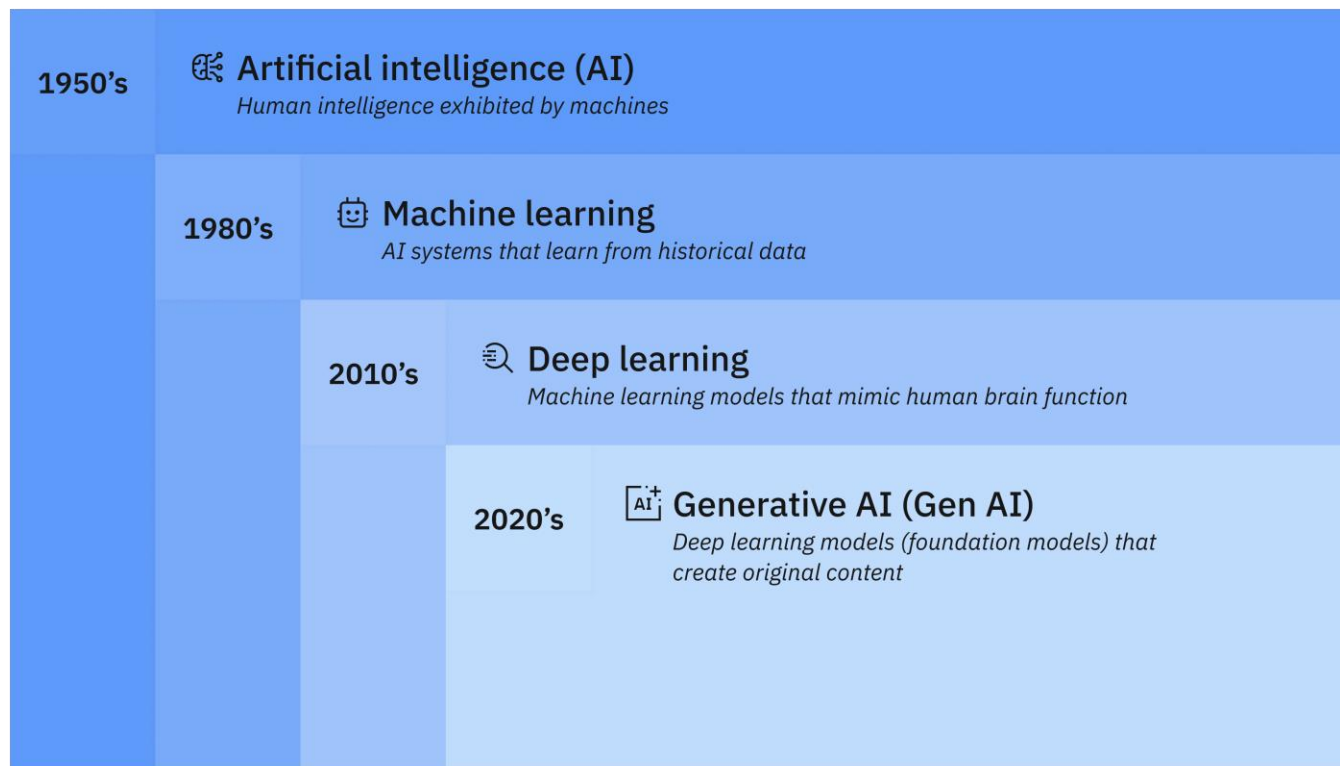
NOTES ON THE USE OF AI

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WHAT IS AI

“Artificial intelligence (AI) is technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy” (Stryker and Kavlakoglu, 2025)



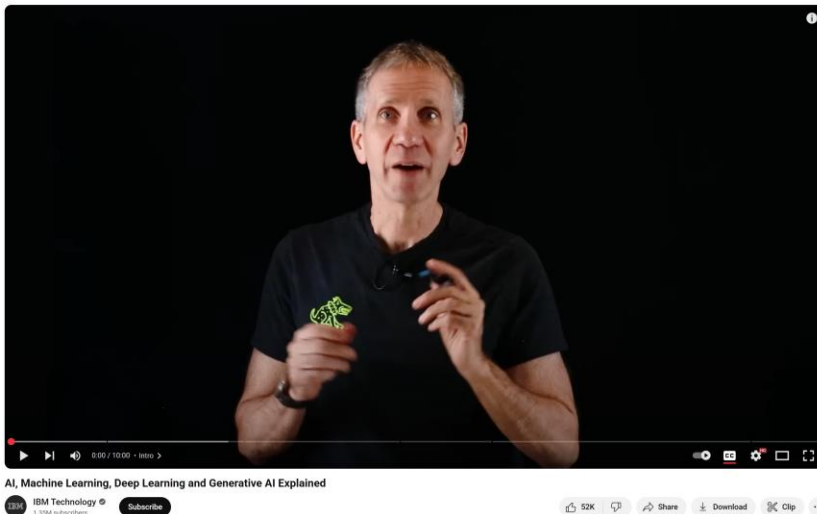
WHAT IS AI

Deep Learning a subset of machine learning that uses multilayered neural networks (deep neural networks), to simulate the human brain.

In simpler applications we use models with one or two neural layers. In deep learning the models can have hundreds of layers.

See here a brief description of its current use:

<https://www.youtube.com/watch?v=qYNweeDHiyU>



WHAT IS AI

The generative models (e.g., large language models. Such as Chat GPT) are of particular interest today due to its already broad use (and abuse), and which may raise ethical questions and issues of plagiarism.

Lets look at how a LLM works to give us some support:



<https://www.youtube.com/watch?v=LPZh9BOjkQs>

WHAT IS AI

Given what we have learned so far, we can already identify the following issues of the use of generative AI:

The generative models are as good as the quality of the input information. If the information is biased, then the output will be biased.

The issue here is that most information available for calibrating (learning phase) the models is itself biased: (Crescendo.ai 2025):

1. Bias due to ethnicity (racism)
2. Bias due to gender (misogyny)
3. Bias due to disabilities
4. Bias due to age
5. Etc.

The bias comes from the sources used in input data.

WHAT IS AI

Is AI producing new information? The answer to this question is NO.

Given the way how the models were built, they can only reproduce what they have “learned”. They can only recombine data to produce what seems like new information.

So, if AI models cannot produce new data, then their output must come from someone else (in fact, from many people). Which means that the use of AI-generated results may constitute plagiarism.

This is what is generally considered at academia and science publishers, but also in most social media.

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HOW TO USE

However, generative AI methods may be useful in many applications. These include:

- Helping in data exploration and creating graphical representations;
- Provide topic ideas for re(search) and writing and/or coding;
- Summarize large datasets;
- Improve grammar and spelling errors.

Note that all results must be checked because errors are very common.

HOW T USE

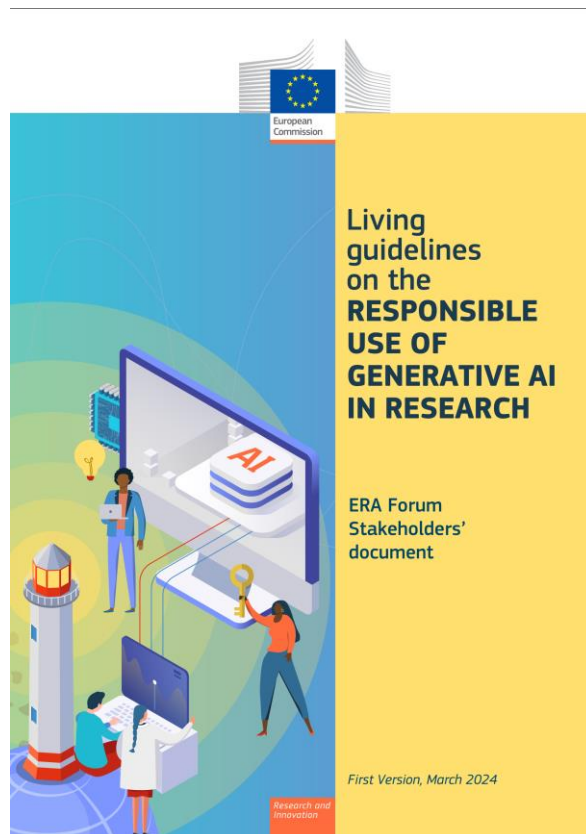
Generative AI methods CANNOT be used for:

- Making the texts for you;
- Produce and spread unethical material;
- Access without permission information which is not publicly available;
- Share private information;

The correct use of generative AI follows the same moral and ethical principles of any other human activity.

HOW TO USE AI

The European Commission has issued some guidelines along this lines, which I reproduce here:



https://research-and-innovation.ec.europa.eu/document/download/2b6cf7e5-36ac-41cb-aab5-0d32050143dc_en?filename=ec_rtd_ai-guidelines.pdf

HOW TO USE AI

For generative AI to be used in a responsible manner, researchers should:

1. Remain ultimately responsible for scientific output.

- Researchers are accountable for the integrity of the content¹³ generated by or with the support of AI tools.
- Researchers maintain a critical approach to using the output produced by generative AI and are aware of the tools' limitations, such as bias, hallucinations and inaccuracies.
- AI systems are neither authors nor co-authors. Authorship implies agency and responsibility, so it lies with human researchers.
- Researchers do not use fabricated material created by generative AI in the scientific process, for example falsifying, altering or manipulating original research data.

HOW TO USE AI

2. Use generative AI transparently.

Detail which generative AI tools have been used substantially in their research processes.

Reference to the tool could include the name, version, date, etc. and how it was used and affected the research process.

If relevant, make the input (prompts) and output available, in line with open science principles.

Disclose or discuss the limitations of generative AI tools used, including possible randomness and biases in the generated content.

HOW TO USE AI

3. Pay attention to issues related to privacy, confidentiality and intellectual property rights when sharing sensitive or protected information with AI tools.

Researchers remain mindful that generated or uploaded input (text, data, prompts, images, etc.) could be used for other purposes, such as the training of AI models.

Taking care not to upload it into an online AI system unless there are assurances that the data will not be re-used, e.g., to train future language models or to the untraceable and unverifiable reuse of data., or that consent has been granted.

HOW TO USE AI

4. Respect applicable national, EU and international legislation

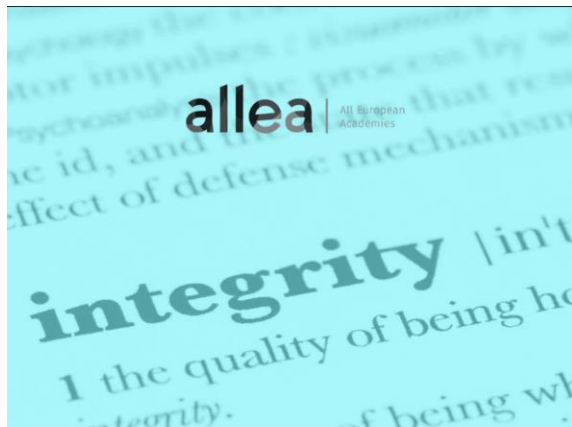
In particular, to the protection of intellectual property rights and personal data.

Pay attention to the potential for plagiarism (text, code, images, etc.) when using outputs from generative AI.

The output produced by generative AI can contain personal data. If this becomes apparent, researchers are responsible for handling any personal data output responsibly and appropriately, and EU data protection rules are to be followed.

HOW TO USE AI

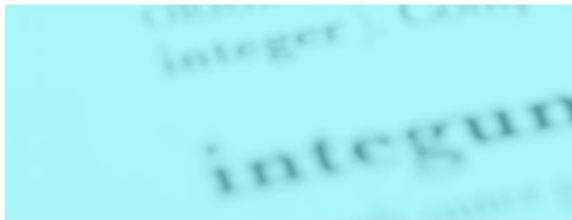
To complement this information, please read the “The European Code of Conduct for Research Integrity”



**The European
Code of Conduct for
Research Integrity**

REVISED EDITION 2023

<https://allea.org/code-of-conduct/>



DISSERTATION PLAN

&

(MANY) NOTES ABOUT THE DISSERTATION

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