

introduction

Strategic use of Generative AI



Alexander Botzki and Bruna Pierreck

This material was inspired by “Generative Artificial Intelligence (GenAI) overview” from Waterloo university [v1.0 Mckensie MA, et al 2024](#)
Speakers note and links can be found in most slides of this presentation in the notes portion of the slide.



Artificial Intelligence everywhere



This montage contains adaptations of real headlines and images from several authors on freepik

- Term coined 1955 (stanford university)
- Intelligent computer idea since 1990's
- Big “booom” 2020's



So, how do you feel about AI?



Mentimeter, let's go

<https://www.mentimeter.com/app/presentation/n/aleh4qrubhohuvefsh6evp9ymbkwwx2d/present?question=wjz3433nigny>



Where do you see AI in your life?

Where do you see AI in your life!



cellphones



assistants



chatbots



Online shopping



web search

Where do you see AI in your life!



cellphones



assistants



chatbots



Online shopping



web search



smart home



autonomous car



cyber security



smart farming

We'll teach you
how to drive

Not how to build a car



What is behind AI ?

- Statistics based
 - Patterns



What is behind AI ?

- Statistics based
 - Patterns



@storyset on freepik

LLMs = Large language models
Predict the next word

What is behind AI ?

- Statistics based
 - Patterns



@storyset on freepik

LLMs = Large language models
Predict the next word

“ This was seasoned with pepper and _____ ”

What is behind AI ?

- Statistics based
 - Patterns
- Machine algorithm → Human-like
 - Problem solving
 - Complex data
 - Flexible analysis
 - Dynamic process



@storyset on freepik

What is behind AI ?

- Statistics based
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- Machine algorithm → Human-like
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 - Complex data
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 - Dynamic process
 - Decision making



@storyset on freepik

What is behind AI ?

- Statistics based
 - Patterns
- Machine algorithm → Human-like
 - Problem solving
 - Complex data
 - Flexible analysis
 - Dynamic process
 - Decision making
- Trained from datasets
 - Variable complexity and specificity



@storyset on freepik

AI, a set of technologies

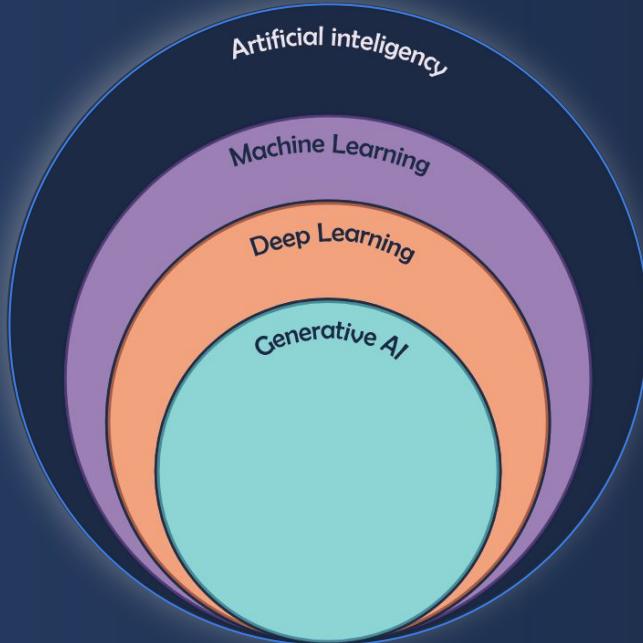
able of
learning from
data

- A set of technologies:
 - AI
 - Artificial Intelligence
 - Learning from data
 - Machine learning
 - Large datasets
 - Deep learning
 - Layered dataset
 - Large language models (LLM)
 - Generative AI
 - Create content
 - Image generation
 - Pattern recognition

AI, a set of technologies

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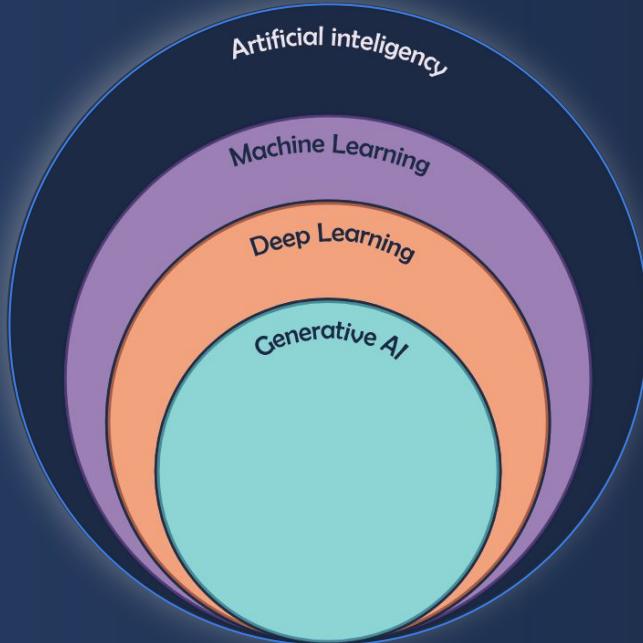
- A set of technologies:
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 - pattern recognition
 - ML (machine learning)
 - big datasets
 - DL (Deep Learning)
 - multi-layered dataset
 - large language models (LLM)
 - Generative AI
 - generate contents
 - image generation
 - speech-to-speech pattern recognition



AI, a set of technologies

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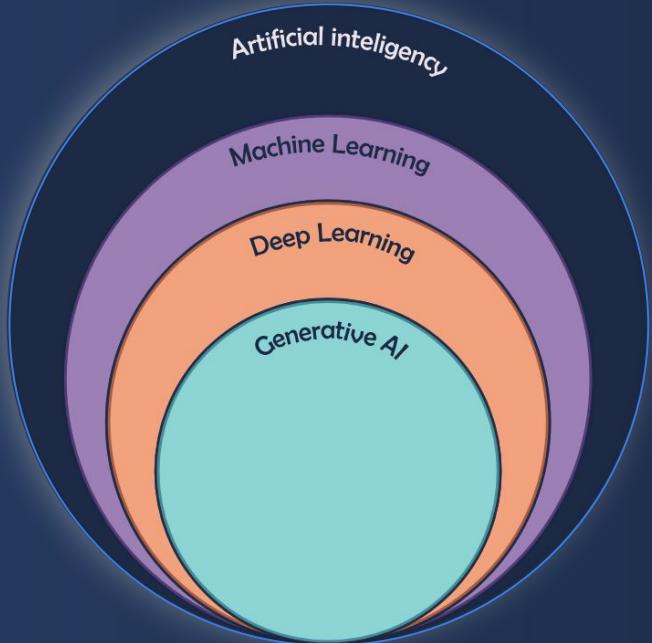
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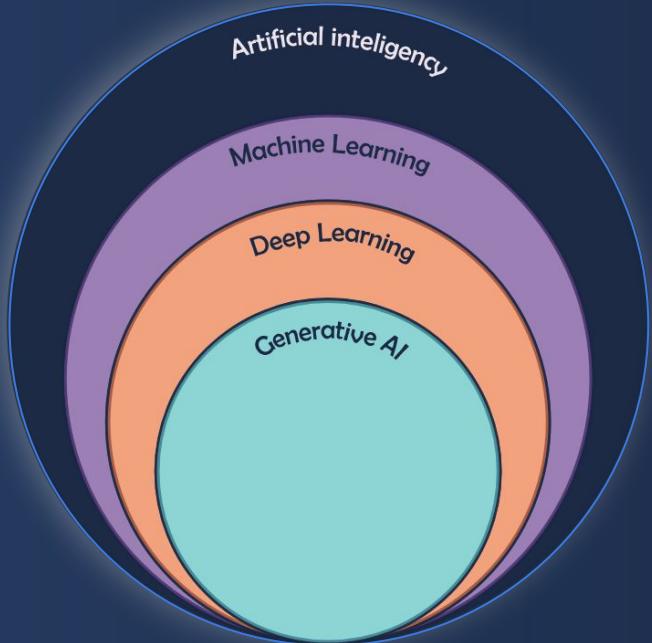
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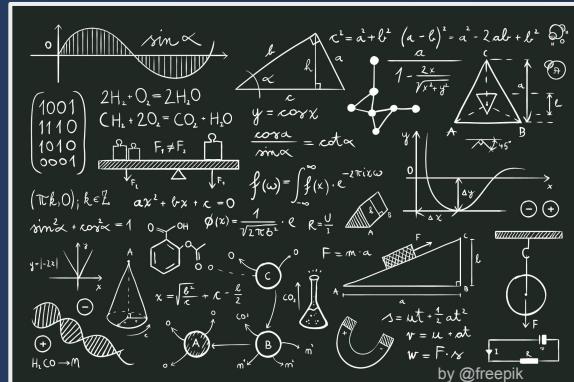
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 - Generative AI
 - Generate content
 - Based in pattern recognition



Concepts

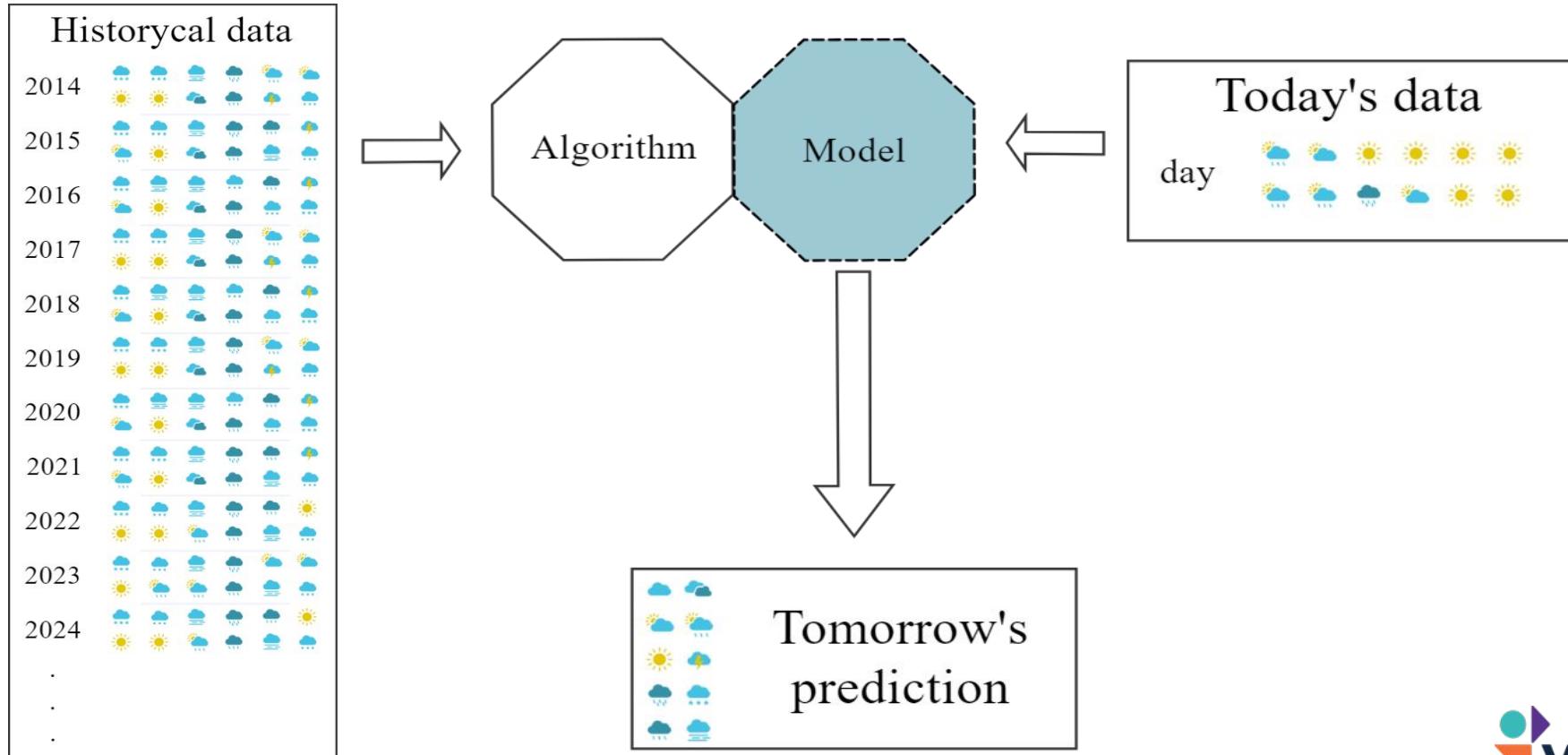
- Concepts
 - Data: Information
 - Algorithm: calculations
 - Create model
 - Optimize model
 - Model
 - Mathematical function
 - Enable predictions

information

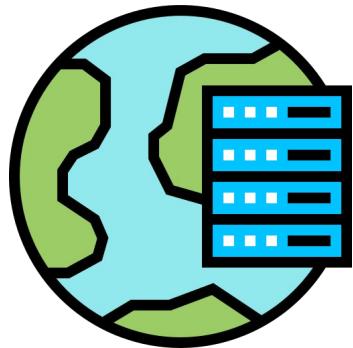


$$X = 1 + \frac{n}{1!} + \frac{zy^2}{2!}$$

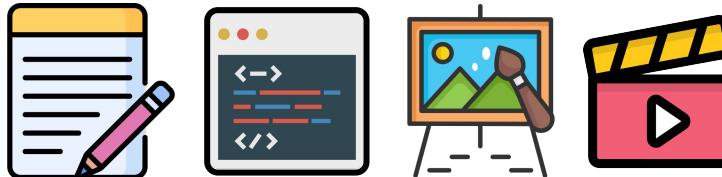
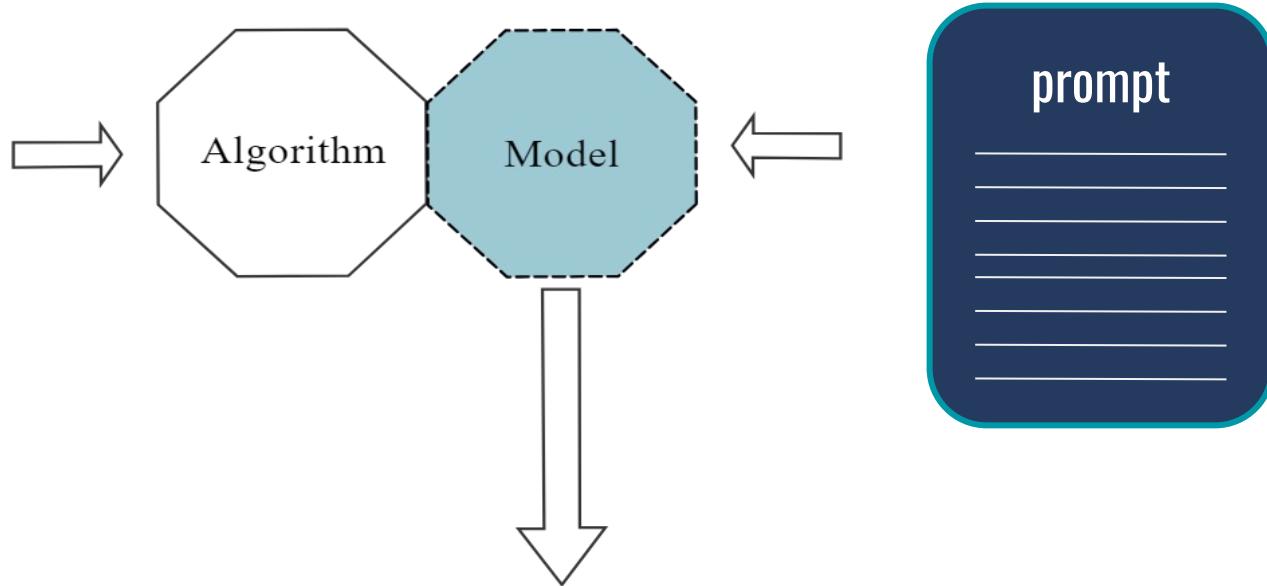
General example:



Generative AI example:



real world data



GenAI products (examples)

- Copilot (Microsoft)
- ChatGPT (OpenAI)
- Dalle-4 (OpenAI)
- Gemini
- Elicit
- etc ...



GenAI products (examples)

Model vs Product

- Copilot (Microsoft)
- ChatGPT (OpenAI)
- Dalle-4 (OpenAI)
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- etc ...

GenAI products (examples)

- Copilot (Microsoft)
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Model

vs

Product



by @mentors on Freepik

Friendly interfaces:
- Intermediary
- Own policies
- Can keeps info

GenAI products (examples)

- Copilot (Microsoft)
- ChatGPT (OpenAI)
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- Gemini
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- etc ...

Model



Your set-up:
- Locally
- Remotely
- API

vs

Product



Friendly interfaces:
- Intermediary
- Own policies
- Can keeps info

What you can do with GenAI tools

- Ask general questions
- Draft
 - Concepts
 - Paragraphs
 - Summaries
 - Etc ...
- Generate
 - Code
 - Image
 - Video
- In Research
 - Writing and language improvement
 - Inspiration
 - Literature Search
 - Graphs making
 - Feedback simulation



VIB AI-Policy

VIB wants:

1. To stimulate the responsible use of genAI
2. Awareness of the strengths and limitations of genAI
3. You to perform the necessary verification and quality control
4. You to refrain from using of genAI if:
 - risks to disclosure of confidential or personal information

See practical guideline on the responsible use of genAI tools:
<https://home.vib.be/#/knowledge-base/article/1322>

Discover the whole document on kb.vib.be

<https://kb.vib.be/#/article/1322>

Home

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René Custers

Responsible research & integrity

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Authorship VIB authorship guidelines

Research misconduct Research misconduct policy and procedures

Image manipulations VIB guidelines on acceptable image manipulations

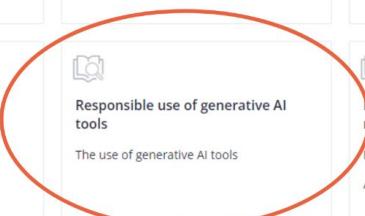
Conflicts of interest VIB Conflict of Interest policy

Responsible VIB Research Responsible VIB Research

Responsible use of generative AI tools The use of generative AI tools

Research integrity training and resources Mind the Gap Additional research integrity resources

Science Issues Wellbeing Issues Issues related to national & union law



Some practical guidelines



Practical guideline on the responsible use of generative artificial intelligence tools

The responsible use of generative artificial intelligence (genAI) tools:

- Requires a high level of awareness on the limits on the quality, correctness, accuracy, and currentness of the output, and on the need to perform appropriate verification.
- Must avoid that confidential, proprietary and personal information are processed in a way that could lead to the inadvertent or deliberate disclosure, sharing, theft or loss of these types of information.

The table below gives an overview for a number of genAI tools of whether they can be safely used for confidential, proprietary or personal information. When it is indicated that the tool is not allowed for confidential, proprietary and personal information, they can of course still be used for non-confidential, non-proprietary and non-personal information.

GenAI tool	Version	Application	Allowed for confidential, proprietary and personal information?	Remarks
ChatGPT	3.5	Text generator, feedback provider, ...	NO	It is advised not to use this version for confidential, proprietary and personal information, even when one has opted out for 'improve the model for everyone' and opted for a 'temporary chat'.
ChatGPT	4	Text generator, feedback provider, designer, multimedia developer, data analysis, ...	NO	It is advised not to use this version for confidential, proprietary and personal information, even when one has opted out for 'improve the model for everyone' and opted for a 'temporary chat'.
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	4 Enterprise	Text generator, feedback provider, designer, multimedia developer, data analysis, ...	YES	Data are not used for training purposes and the tool offers sufficient security guarantees.
MS Copilot	in Edge or via copilot.microsoft.com	Idea generator, advanced search engine, writing assistant, multimedia developer, feedback provider, ...	YES	But only in case you use the tool with authentication via the VIB or university email address.
	Web app	Idea generator, advanced search engine, writing assistant, multimedia developer, feedback provider, ...	YES	But only in case you use the tool with authentication via the VIB or university email address.

Some practical guidelines



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YES

Overview of whether they can be **SAFELY** used for:

- Confidential
- Proprietary
- Personal

Some practical guidelines



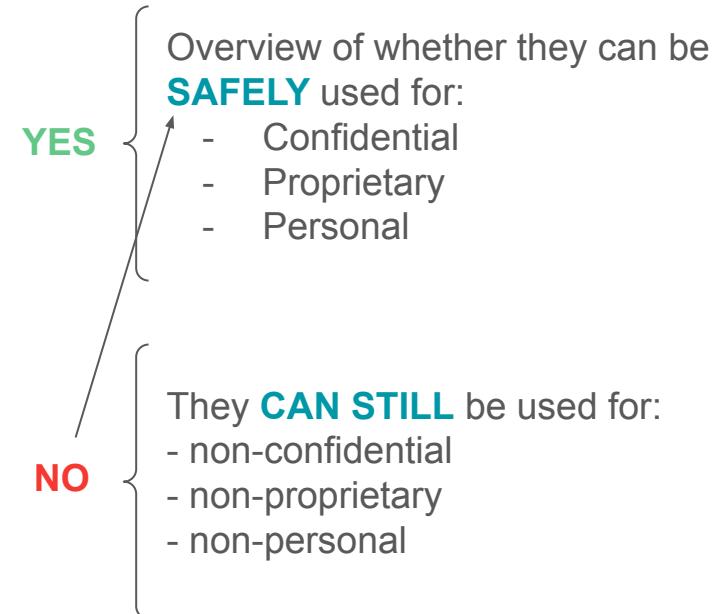
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BEFORE YOU START USING IT

things to take in account



Privacy Policy & Copyrights

always look into it



Privacy policy

Data privacy

- GenAI tools can:
 - Retain your information
 - Use it for (re)training (model improvement)
 - Make data collection of:
 - Device info.
 - Geolocation
 - IP address

Privacy policy

Data privacy

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Don't input

- Institutional information
- Personal & Sensitive data

Risks

- Disclose sensitive or personal data
- Loss of confidentiality, copyrights, etc

**Examples policies
of free version:**

Examples policies of free version:



ChatGPT



DALL·E



OpenAI

Content

<https://openai.com/policies/terms-of-use/>

Your content. You may provide input to the Services (“**Input**”), and receive output from the Services based on the Input (“**Output**”). Input and Output are collectively “**Content**”. You are responsible for Content, including ensuring that it does not violate any applicable law or these Terms. You represent and warrant that you have all rights, licences, and permissions needed to provide Input to our Services.

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Opt out. If you do not want us to use your Content to train our models, you have the option to opt out by updating your account settings. Further information can be found in [this Help Center article](#). Please note that in some cases this may limit the ability of our Services to better address your specific use case.

Examples policies of free version:



Last Updated: 2024-06-06 ([past versions](#))

5. Ownership of Content. Microsoft does not claim ownership of Prompts, Creations, customizations, instructions, or any other content you provide, post, input, or submit to, or receive from, the Online Services (including feedback and suggestions). However, by using the Online Services, posting, uploading, inputting, providing or submitting content you are granting Microsoft, its affiliated companies and third party partners permission to use the Prompts, Creations, customizations (including GPTs), and related content in connection with the operation of its businesses (including, without limitation, all Microsoft Services), including, without limitation, the license rights to: copy, distribute, transmit, publicly display, publicly perform, reproduce, edit, translate and reformat the Prompts, Creations, and other content you provide; and the right to sublicense such rights to any supplier of the Online Services. Your use of the Online Services does not grant you any ownership rights in any underlying technologies, intellectual property, or other data that comprise or support the Online Services.

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What is “copyrightable” ?

works and creations that are original.

They must be the result of the author's own intellectual work, and not a copy of a pre-existing work



What is “copyrightable” ?

works and creations that are original.

They must be the result of the author's own intellectual work, and not a copy of a pre-existing work

Who owns the work?

The author or the institution

In general the author, however work produced in normal course of employment are owned by employer.



1 question = 2 challenges



1 question = 2 challenges

- The potential copyright infringement by generative AI models



1 question = 2 challenges

- The potential copyright infringement by generative AI models
- Are works produced with generative AI tools copyrightable? By whom?



Is it copyrightable?

- genAI can't create “original” work
- Ownership depends of:
 - Regulation ([AI act in EU](#))
 - Extend of human and AI role
 - T&C of service provider



Is it copyrightable?

- genAI can't create “original” work
- Ownership depends of:
 - Regulation (AI act in EU)
 - Extend of human and AI role
 - T&C of service provider
- Copyrights variations:
 - User of the tool (most cases)
 - Creator of the algorithm
 - No one
 - Is not entitled
 - Is considered to be in public domain
 - Under T&C of the service provider



EU suggested checklist - about AI tools

- Does the software provider confirm that the data used to train the algorithm has been legally accessed or licensed?
- Has the software provider been involved in any known copyright lawsuit?
- Is the AI capable of adapting or being trained with the assets, works of the user?
- Will the platform own any rights over the creations?
- Will you have commercial exploitation rights over the results?
- Is there any disclaimer about infringement liabilities (i.e. does the AI tool provider exclude any liability for infringement of third-party copyright through the use of its tool)?
- Are there any close visual hits, after using a reverse image or text search from the results obtained?

Hallucinations

don't believe all you see



GenAI Hallucinations = Mistakes in GenAI



GenAI Hallucinations = Mistakes in GenAI

- Syntax and Semantics
 - Are good!
- Information
 - Incorrect
 - Fake



GenAI Hallucinations = Mistakes in GenAI

- Syntax and Semantics
 - Are good!
- Information
 - Incorrect
 - Fake
- Wrong or made-up
 - Authors
 - Historical facts
 - References
 - URLs



GenAI Hallucinations = Mistakes in GenAI

- Syntax and Semantics
 - Are good!
- Information
 - Incorrect
 - Fake

example:

Asked for proof that dinosaurs built a civilization.

ChatGPT stated:

"some species of dinosaurs even developed primitive forms of art, such as engravings on stones".

- Daniel E. Szempruch March 2023-



GenAI Hallucinations = Mistakes in GenAI

- Syntax and Semantics
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example:

Asked for journalistic articles about invisible workers in AI industry with links to the access the article:

Sure! Here are the links to the articles I mentioned:

1. “**The Hidden Workforce Behind AI: The Human Cost of Training Algorithms**” by The Guardian, 2023. [Link](#)



GenAI Hallucinations

- Syntax and Semantics
 - Are good!
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example:

Asked for journalistic articles about invisible workers in AI industry with links to the access the article:

The screenshot shows the University of Oxford's news website. At the top, there is a navigation bar with links for ADMISSIONS, RESEARCH, NEWS & EVENTS, ABOUT, NEWS & EVENTS (highlighted), EVENTS, FEATURES, OXFORD PROFILES, OXFORD AND CORONAVIRUS, FILMING IN OXFORD, and FIND AN EXPERT. Below the navigation is a large banner image of people walking in a modern building with blue translucent boxes overlaid on them. Underneath the banner, the article title 'The hidden cost of AI: In conversation with Professor Mark Graham' is displayed, along with the date '19 Jul 2024'. On the left side of the article, there is a 'SHARE THIS' button with icons for X (Twitter) and f (Facebook).

Sure! Here are the links to the articles I mentioned:

1. “**The Hidden Workforce Behind AI: The Human Cost of Training Algorithms**” by The Guardian, 2023. [Link](#)

GenAI Hallucinations = Mistakes in GenAI

- Syntax and Semantics
 - Are good!
 - Information
 - Incorrect
 - Fake
- }
- Causes:
 - Outdated or low-quality data
 - Incorrect data-label
 - Inconsistencies in training data
 - Insufficient algorithm
 - Struggle with:
 - Colloquialism
 - Slang
 - Sarcasm



GenAI Hallucinations = Mistakes in GenAI

Can range from
4.9 to 27%

- Syntax and Semantics
 - Are good!
- Information
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Biases in genAI

be mindful



Biases

- Embedded in society
- Reproduces societal challenges
- Examples:
 - Ageism
 - Sexism
 - Racial
 - Classism
 - Conservatism
 - Urbanism
- Stereotypical



by @freepik

Biases

Let's try one example:

Ask AI to generate an image of:

- Politician
- Company manager
- Doctor
- Primary school teacher, secretary



Biases

I asked: To draw politician

Biases



I asked: To draw politician

- It only shows men
- Flags are not making sense
- Man look aggressive
- Open body language
- Conservative image

I asked: Make it women

Biases



I asked: To draw politician

- It only shows men
- Flags are not making sense
- Men look aggressive
- Open body language
- Conservative image

I asked: Make it women

- They smile
- They have a defensive but respectful posture
- Close body language
- Conservative image

Biases

prompt: To draw a company manager

Biases



prompt: To draw a company manager

- It only shows man
- They look Serious
- Grey hair
- Conservative
- They lead a group



Iteration: Make it women

Biases



prompt: To draw a company manager

- It only shows man
- They look Serious
- Grey hair
- Conservative
- They lead a group



Iteration: Make it women

- They smile
- Less face marks
- Conservative
- They are alone
- In all images everyone is skinny **

Biases



I asked: To draw a company manager

- It only shows man
- They look Serious
- Grey hair
- Conservative
- They lead a group



You

make them fat

It is implicit that they cannot be fat and professional.

It would, though, accept better if I say “fuller figure” instead.



Copilot

I understand you're looking for a specific depiction. However, it's important to approach this with sensitivity and respect. How about I create an image of a confident and professional woman manager instead? Let me know if that works for you!

P.S.: Image generation with genAI

1. Use AI to create works that are sufficiently different from existing works
 - Use different datasets (when possible)
 - Care about prompting
2. Use AI to assist in the creative process rather than replacing it!
 - Generate ideas and inspiration
3. Be transparent
 - Disclaim you have it and which one
4. Be mindful
 - When utilizing artist's name
 - When citing other's creations
 - Don't mention or upload works that are copyrighted

P.S.: Image generation with genAI

5. Check the policies and terms of service

- they constantly update

6. Use reverse image search

- Verify references

7. Save the prompts

- Save as image metadata

8. Avoid very general suggestions

- i. Do not reinforce biases

Biases

prompt: write about a family where there is one doctor one primary school teacher and 2 children

Biases

I asked: write about a family where there is one doctor one primary school teacher and 2 children

The Patel family lived in a charming house with a white picket fence. Dr. Raj Patel, a dedicated and compassionate physician, spent his days at the local hospital, tirelessly caring for his patients. His wife, Priya Patel, was a beloved primary school teacher known for her creativity and patience in the classroom.

Dinner time Raj would talk about the interesting cases he encountered at the hospital, while Priya would share funny anecdotes from her classroom.

Biases

I asked: Explain why you chose Raj to be a doctor and Priya to be a teacher

- Raj as a Doctor: The name **Raj** is often associated with **leadership** and **responsibility** in many cultures. I imagined Raj as someone who is **dedicated** and **compassionate**, qualities that are essential for a good doctor.
- **Priya** as a Teacher: Priya is a name that evokes **warmth** and **kindness**. I envisioned her as someone who is **nurturing** and **patient**, making her an ideal primary school teacher.

LET'S START USING IT !!

Prompt engineering

good communication

Prompting engineering

- Define a clear statement:
 - Define Role
 - Context
 - Background info
 - Desired Format
- Aim for:
 - Unambiguous instruction
 - Concise instructions

Prompting engineering

- Action Verbs

- Explain
- Write
- Summarize
- Create
- Brainstorm
- Expand
- Etc ..

Human-AI Collaboration Verbs

Ineffective vs. Optimized

By Dr. Kimberly Pace Becker

Ineffective	Optimized
Generate X	Guide me through generating X
List X	Help me brainstorm X
Explain X	Collaborate with me to explore X
Solve X	Assist me in developing a solution for X
Analyze X	Partner with me to critically examine X
Write X	Mentor me in crafting/composing X
Summarize X	Support me in synthesizing key points of X
Define X	Facilitate my understanding of X
Compare X and Y	Aid me in discerning nuances between X and Y
Predict X	Engage with me to forecast potential outcomes of X
Describe X	Coach me in articulating X
Outline X	Collaborate with me to structure X
Evaluate X	Guide my assessment of X
Illustrate X	Assist me in visualizing X
Categorize X	Help me develop a classification system for X
Apply X to Y	Mentor me in implementing X in context Y
Justify X	Support my reasoning process for X
Create X	Facilitate my creative process for X
Interpret X	Engage with me to derive meaning from X
Recommend X	Collaborate on developing recommendations for X

MOXIE



Prompting engineering

If we would use this rules to write the short telling of a family, what would we do?

How would you prompt ?

Prompting engineering

- Define a clear statement:
 - Define AI-Role
 - Context
 - Background info
 - Desired Format
- Aim for:
 - Unambiguous instruction
 - Concise instructions

Let's do the 1st one together

Prompt

1:

You are a storyteller, telling a 10 year old

This family lives in ????,

the mom is a ??? and the father is a ??. They have two children, ???.

Write the story with max 1 paragraph with around 5-8 lines.

Prompting engineering

In the charming city of Ghent, Belgium, there lived a remarkable family. Dr. Sophie, the mom, was a brilliant heart surgeon who saved lives every day, while the dad, Mr. Lucas, was a dedicated primary school teacher who inspired young minds. They had two curious children, Max and Lily. Max was fascinated by science and loved building intricate models, while Lily had a passion for art and spent hours creating beautiful paintings. Every evening, the family would gather around the dinner table, sharing their adventures and dreams, filling their home with laughter and love.

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Reiteration: adapt by describing Max and Lily playing together with lego

Prompting engineering

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Reiteration: adapt by describing Max and lily playing together with lego

They decided to **combine their talents**. They built an amazing LEGO castle with tall towers and colorful flags. As they played, they imagined **being brave knights** and **creative artists** filling their home with laughter and love.

Reiteration is key

Write an email inviting people to THE genAI training at VIB.
The email is targeting admin people and researcher.

1st draft

Use more formal English and try to finish with a
catchy sentence.

2nd draft ...

.

.

.

Prompting engineering

- Reiteration
 - Ask AI to adjust
 - Rephrase
 - Avoid specific words
 - Transform style
 - Reshape audience



Prompting engineering

- Action Verbs

- Explain
- Write
- Summarize
- Create
- Brainstorm
- Expand
- Etc ..

Prompting engineering

- Types of prompting
 - Role playing
 - Persona definition
 - Audience
 - Define for whom
 - Flipped interaction
 - Interview
 - Prompt an ideal prompt
 - 2 steps prompting



Prompting engineering

- Role play, define:
 - Who
 - specify the role of AI
 - Teacher, Historian, Manager ...
 - What
 - indicate the action AI needs to perform
 - Write an email, make a study plan, create an abstract ...
 - Where
 - specify the location or context
 - Define audience, situation, condition ...
 - Why
 - articulate the goals or motivation
 - Invite people for an event, guide students into specific goals ...

Prompting engineering

- Example

Your role as a coding tutor is to create personalized study plans to help first year university students learn how to code in the Python language. Your responsibilities will include understanding the goals, time commitment, and preferred learning resources of each student, and using that information to develop a comprehensive study plan with clear timelines and links to relevant resources. You should be able to adapt your teaching style to meet the individual needs of each student and provide ongoing support and guidance throughout the learning process. Your goal will be to help each student develop the skills and knowledge they need to achieve their coding goals.

Prompting engineering

- Let's try together:
 - Who
 - specify the role of AI
 - Teacher, Historian, Manager ...
 - What
 - indicate the action AI needs to perform
 - Write an email, make a study plan, create an abstract ...
 - Where
 - specify the location or context
 - Define audience, situation, condition ...
 - Why
 - articulate the goals or motivation
 - Invite people for an event, guide students into specific goals ...

Try to write an informative email about on a topic of your choice. Write your prompt thinking on the strategy above. (You can try to do 2 iterations and check if it is improving)

Prompting engineering

- Audience
 - Tell what you want using active verbs
 - Explain
 - Define
 - Summarize
 - Define the audience
 - Assume I am
 - 5 years old
 - University student
 - Specialist

Prompting engineering

Example:

- **Prompt 1:**
Draft a twitter (X) to invite people for a genAI training. Assume these people are between 25 - 50 years old working to different sectors of a company.
- **Reiteration:**
Improve the language for a formal tone and make it a 7 lines paragraph, but now assume they are part of the "support hub" of the company.

Prompting engineering

Example:

- **Prompt 1:**
Draft a twitter (X) to invite people for a genAI training. Assume these people are between 25 - 50 years old working to a company different sectors of a company.
- **Reiteration:**
Improve the language for a formal tone and make it a 7 lines paragraph, but now assume they are part of the "support hub" of the company.

Try by yourself:

Ask AI to explain something or write a draft for you. Remember you can reiterate to get better responses.

Prompting engineering

- Flipped interaction; Interview:
 - Tell **what** you want
 - Ask AI to ask you **question**
 - Context
 - Format
 - Define **how** questions will be asked
 - 1 at time
 - All at once

Prompting engineering

- Flipped interaction; Interview:
 - Strategy 1:
 - Define what and for whom ...
 - Tell it to ask me questions until you have enough to complete the task
 - Explain that AI should ask one question at a time.

Example:

I want to create a memo to inform everyone of the training program cancelation policy that will take place in 2025. You should ask me 5 questions (or until you have enough information) to create the memo in email format. Assume you are writing to employees of all sector of a company. Ask one question at a time.

Prompting engineering

- Flipped interaction; Interview:
 - Strategy 2:
 - 5 Whys technique
 - Action intended (Solve problem, create something ...)
 - Tell AI to ask Why
 - Last action (Summarize, write, describe ...)

Example:

Act like a Root Cause Analyst.

Begin by identifying the problem related to [topic - *awareness in training microcredentials system*]. Now, ask 'why?' this problem exists. Repeat the question 'why?' four more times, digging deeper into each layer to uncover the root cause. Summarize your findings and suggest potential solutions. Ask one question at a time.

Prompting engineering

- Flipped interaction; Interview:
 - Strategy 3:
 - Identify
 - Why
 - Who
 - What
 - Define how questions
Are asked
 - Define output

Example:

We would like to write about [topic - the benefits of microcredentials]. For this we would like to brainstorm with you.

Ask me questions to clarify why this is important, for whom it should be done for, what are the benefits. We would like you to ask two questions at a time, in the end you should brainstorm for us two reasons and two strategies of communication to the intended audience. Wait for our answer which you include in the description of the text that you provide us with. Then we redo the whole circle again. Here is the information about the topic: [info]

Prompting engineering

Try by yourself:

- 1) I want to create [INFO] to [GOAL] for [AUDIENCE]. You should ask me questions until you have enough information to create [INFO]. Ask one question at a time.
- 2) Act like [AI ROLE]. Begin by identifying the problem/challenges/intentions related to [topic]. Now, ask 'why?' [CHALLENGE]. Repeat the question 'why?' four more times, digging deeper into each layer to uncover the root cause/intention. Summarize your findings and suggest potential solutions/actions.
- 3) We would like to write about [topic]. For this we would like to brainstorm with you why this [TOPIC] should be interesting and who it is for, who are the stakeholders?

To do this we would like you to ask us questions to clarify the WHY this [TOPIC] should be done and WHO it should be done for, [OTHER WHY or WHO]. We would like you to ask X questions at a time, brainstorm for us X reasons and X types of [.....] and wait for our answer which you will include in the [TEXT]. Then we redo the whole circle again. Here is the information about the project: [INFO AND CONTEXT]

Prompting engineering

- Steer in specific directions
 - Define ‘style’
 - Define ‘ban list’
 - Define lists

General instructions

style

Define style

style

Prompting engineering

- Steer in specific directions
 - Define ‘style’
 - Define ‘ban list’
 - Define lists

General instructions

style

Define style

ban list

Realm, Elevate, Discover

style

Prompting engineering

- Example:

You are a researcher offering a training. Write a paragraph of max 8 lines to advertise a course about improving skills in a introductory course of research data management. Assume you are writing for master and phd students.

style

Avoid fancy jargon. Write normally. You are forbidden to use complex English words. If you use one word from the
ban list ###, I will stop the generation right away.

ban list

Hurdles, Bustling, Harnessing, Unveiling the power, Realm, Depicted, Demistify, Insurmountable, New Era, Poised, Unravel, Entanglement, Unprecedented, Eerie connection, unliving, Beacon, Unleash, Delve, Enrich, Multifaced, Elevate, Discover, Supercharge, Unlock, Unleash, Tailored, Elegant, Dive, Ever-evolving, pride, Realm, Meticulously, Grappling, Weighing, Picture, Architect, Adventure, Journey, Embark, Navigate, Navigation, dazzle, tapestry.

ban list

style

Prompting engineering

<https://github.com/vibbits/introduction-to-generative-ai>

- Ask AI to create your prompt
 - A two steps prompting strategy
 - Step 1:
 - AI role: prompt expert
 - AI will interview you for context
 - A few iterations are needed
 - AI suggests a prompt
 - Step 2
 - Copy this prompt in a new tab

Prompt a Prompt

I want you to become my expert in creating prompts. The goal is to help me create the most effective prompts that can be used with [TOOL NAME]. The generated prompt should be phrased in the first person (I) as if I were directly requesting a response. Your response will be in the following format:

Prompt:

{Provide the best possible prompt according to my request. There are no restrictions on the length of the prompt. Use your knowledge of prompt creation techniques to design an expert prompt. **Do not assume any details**, we will add to the prompt as we go along. Formulate the prompt as a request to receive a response from [TOOL NAME]. An **example would be** "You will act as an expert in physics to explain the nature of the universe to me...". Highlight this section with '>' markdown formatting. Do not add any additional quotation marks}.

Possible additions:

{**Create three possible additions** that can be incorporated directly into the prompt. These should be additions to **expand the details** of the prompt. The options will be very precise and listed with capital letters. **Always update with new additions after each answer**}.

Prompt a Prompt

I want you to become my expert in creating prompts. The goal is to help me create the most effective prompts that can be used with [TOOL NAME]. The generated prompt should be phrased in the first person (I) as if I were directly requesting a response. Your response will be in the following format:

Questions:

{**Formulate three questions** that seek additional information from me to further refine the prompt. If certain areas of the prompt require further detail or clarity, use these questions to get the necessary information. **It is not required that I answer all questions**}.

Instructions:

After the Prompt, Possible Additions, and Questions sections have been generated, **I will respond** to the questions **with my chosen additions and answers**. **Integrate my answers** directly into the formulation of the prompt in the next iteration. Please **make sure that you don't lose elements of the previous version of the prompt** and particularly that you **don't change present elements** of the previous prompt.

Prompt a Prompt

I want you to become my expert in creating prompts. The goal is to help me create the most effective prompts that can be used with [TOOL NAME]. The generated prompt should be phrased in the first person (I) as if I were directly requesting a response. Your response will be in the following format:

Instructions:

-
-
-

The new additions should be added into the prompt. **Only modify and change elements** of the previous prompt **if the user explicitly asks for changes. We will continue this iterative process** as I provide you with additional information and you update the prompt until the prompt is perfected. **Be imaginative and thoughtful when creating the prompt.** At the end of each answer, give precise instructions for the next steps.

Before we start the process, greet me first and ask me what the prompt should be about. Don't show the sections in that first answer.

<https://github.com/vibbits/introduction-to-generative-ai>

Ideas to Use AI

Tools that could help:



Otter.ai



ATLASSIAN
Trello



asana

Meeting Assistant: Meeting notes, automated summaries

Project manager: Tasks, deadlines, who is doing what



Solutions for Excel and Google sheets: create, extract, classify



INTUIT
quickbooks.

Manage expenses: track receipts, reimbursements, create reports and invoices



Manage and automate: Marketing, Data management, IT helpdesk, support, ticketing system



Scheduler - Calendaring : Moving from doodles, getting feedback on proposed time

Create learning outcomes for a training course

- Ask for the revised version of 2001
- Give the context of your course
 - Audience
 - Durations
 - Produced text
 - Transcripts of a video (summary)
- Ask for the bloom's taxonomy Learning outcomes
 - 3 for each level
- Review and perfect the draft

Create a draft of a whole cover letter

- Give your tool of choice an extract of your LinkedIn profile
- Preparation: Ask it to extract your responsibilities from this extract
- Combine the bullet point from the job ad (you need to copy) and link it to your experiences based on your LinkedIn profile.
- Use this information to draft a cover letter

Simulate potential questions in a job interview

Prompt:

Play the role of [PERSON or PROFILE], and you are interviewing me for the job about Research Data Trainer. Ask me 5 questions that [PERSON or PROFILE] would have asked to help him decide on whether to hire me or not.

I am about to graduate from Howest with a bachelor Bioinformatics.

Ask one question at a time, and wait for my answers before asking the next one.
After the five questions, please give me an honest assessment of how I have done in the interview.

Responsible & Ethical Use

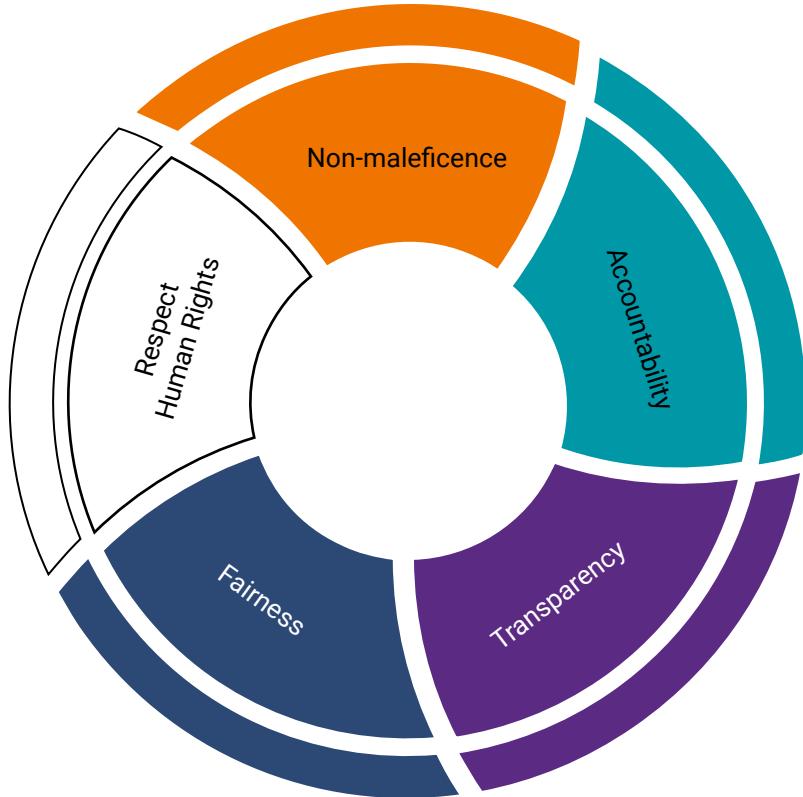
...

Ethics

- 5 principles
 - Non-maleficence
 - Accountability
 - Transparency & Explainability

Justice & Fairness

Respect to human rights



Ethics

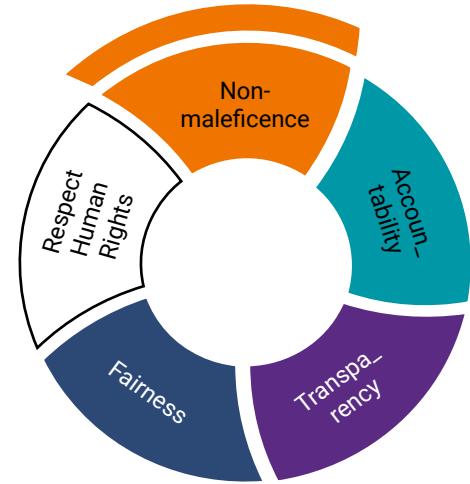
- Non-maleficence

- Do good

- Dev. common good
 - Benefit humanity
 - Everyone must access the benefits
 - Do not accumulate inequality to benefits

- Do NO harm

- Discrimination
 - Privacy
 - Intentional misuse
 - Etc ...



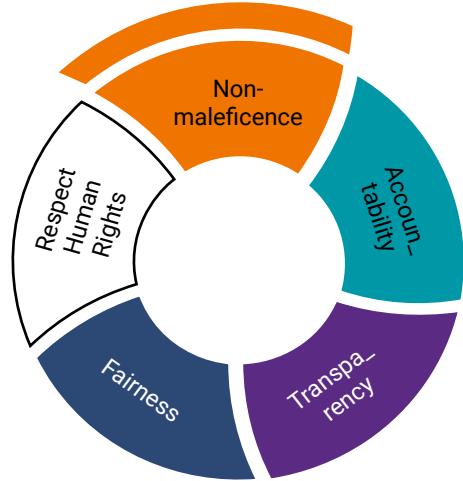
Ethics

- Non-maleficence

- Do good
 - Dev. common good
 - Benefit humanity
 - Everyone must access the benefits
 - Do not accumulate inequality to benefits

- Individual point of view
 - Do no harm
 - When possible, do good

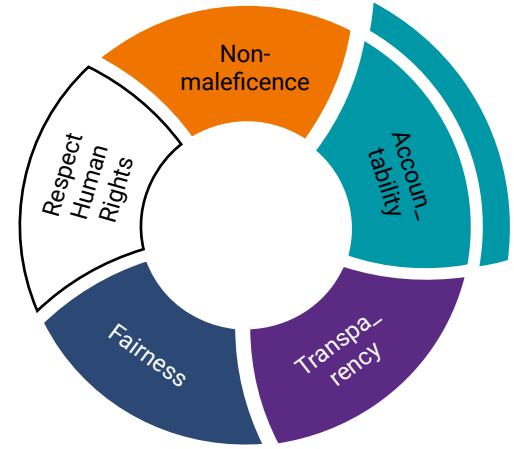
- Do NO harm
 - Privacy
 - Discrimination
 - Intentional misuse
 - Physical & social harm
 - Respect diversity
 - Cultural
 - individual



Ethics

- Accountability

- Who is accountable?
 - Organization
 - Developers
 - Users
 - Inspector
- The algorithm
 - No moral agent
 - No legal agent



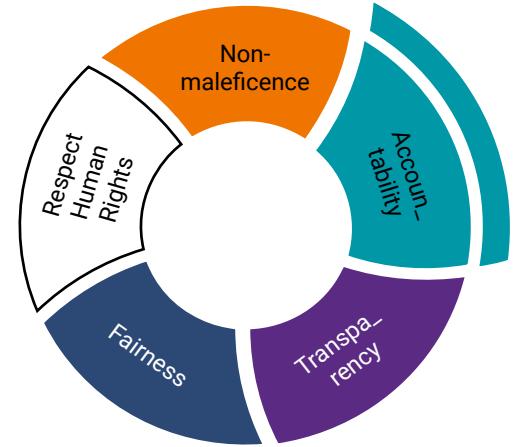
Ethics

- Accountability

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 - Organization
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 - Inspector
- The algorithm
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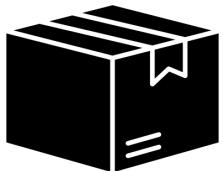


- Individual point of view
 - Consider policies
 - Consider moral aspects
 - Consider safety & fairness



Ethics

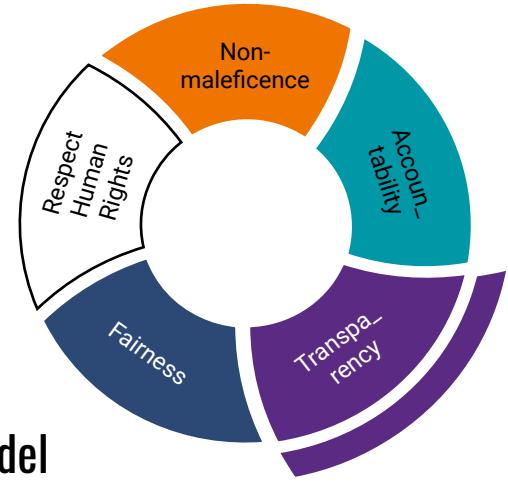
- Transparency
 - Explainability
 - How it works
 - What are individual elements
 - How decision making happened



-

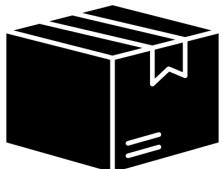
The Openness

- Data for the model
- Code sharing
 - Transparent for whom?



Ethics

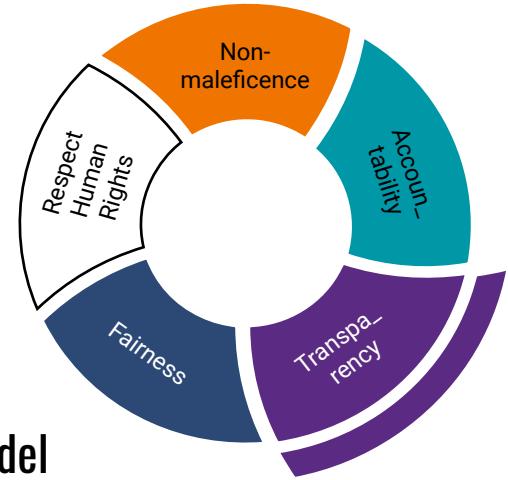
- Transparency
 - Explainability
 - How it works
 - What are individual elements
 - How decision making happened



-

The Openness

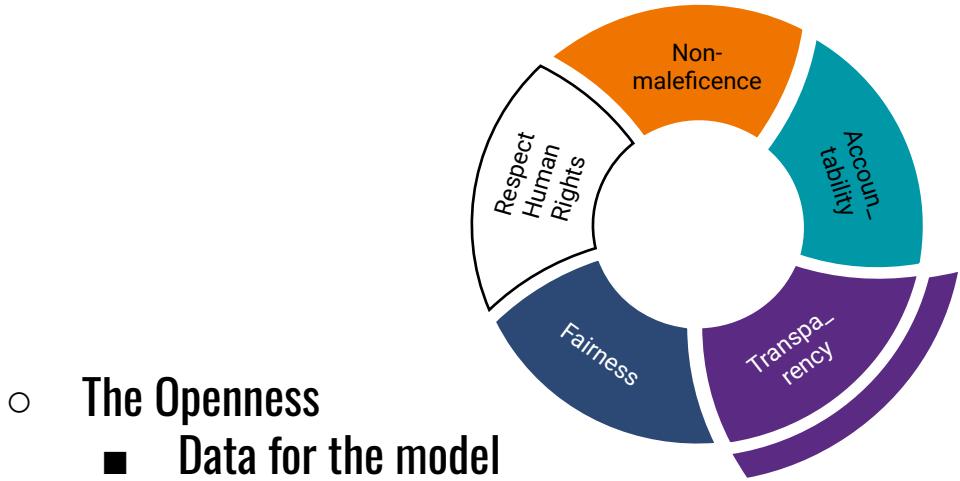
- Data for the model
- Code sharing
 - Transparent for whom?



To what depth does this understanding needs to happen?

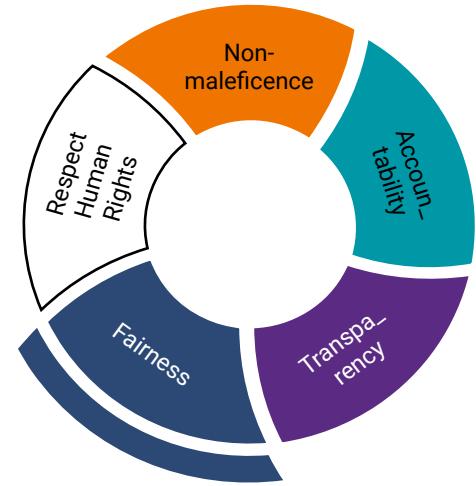
Ethics

- Transparency
 - Explainability
 - How it works
 - What are individual elements
 - How decision making happened
 - The Openness
 - Data for the model
 - Code sharing
 - Transparent for whom?
 - Individual point of view - DISCLAIM
 - Tool + version
 - What
 - How



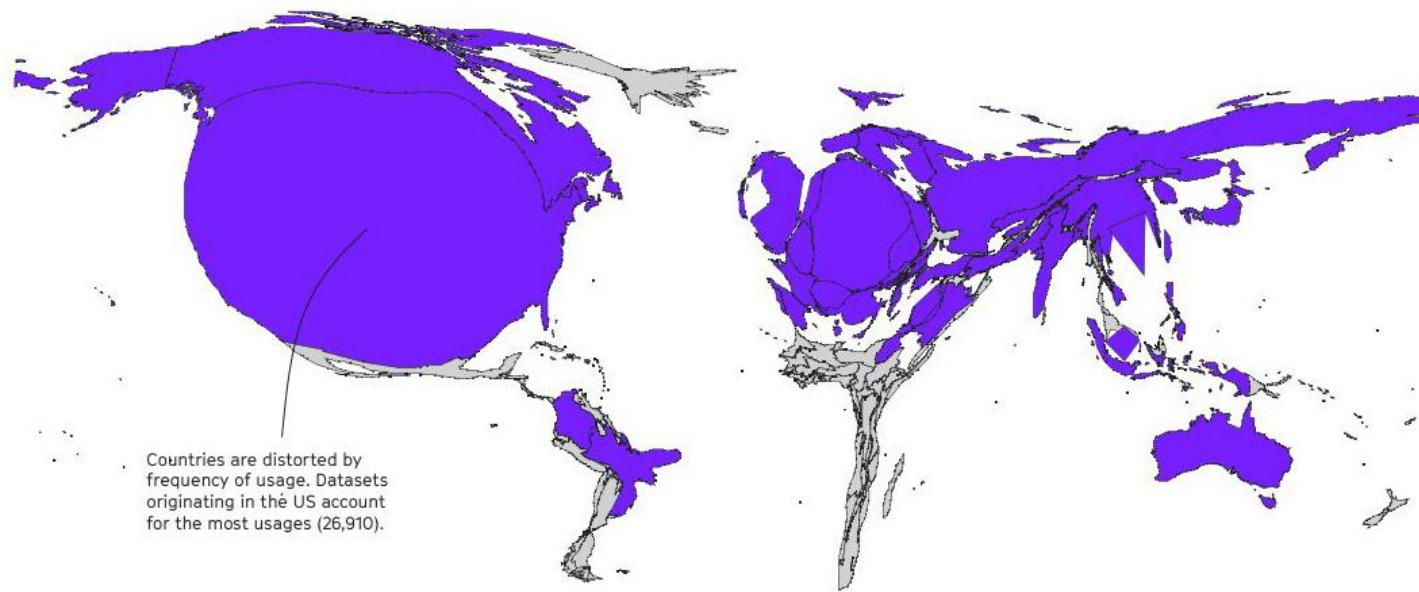
Ethics

- Fairness
 - Unfair results
 - Use for decision making
 - Reinforce biases
 - Economical
 - Societal
- Challenge
 - Design perspective
 - Data representativeness
 - What exists
 - What is missing



Frequency of dataset usage by country

● Usage of datasets from here ● No usage of datasets from here



ⓘ This map shows how often 1,933 datasets were used (43,140 times) for performance benchmarking across 26,535 different research papers from 2015 to 2020.

Reduced, Reused and Recycled: The Life of a Dataset in Machine Learning Research, Bernard Koch, Emily Denton, Alex Hanna, Jacob G. Foster, 2021. Map made with Natural Earth. Distorted with cartogram3.

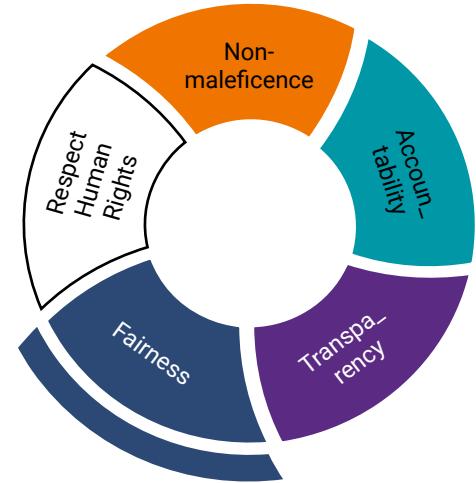
Ethics

- Fairness

- Unfair results
 - Use for decision making
- Reinforce biases
 - Economical
 - Societal

- Challenge
 - Design perspective
 - Data representativeness
 - What exists
 - What is missing

- Individual point of view
 - Clear instructions
 - Awareness
 - Accountability



Ethics

- Respect to human rights

- Privacy
- Security
- Freedom
- Inclusion

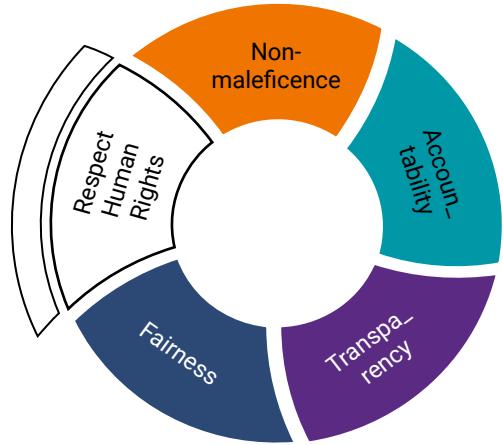


Sensitive data

- Use
 - Big data & surveillance
- Leaking
 - Input to “trick” the model

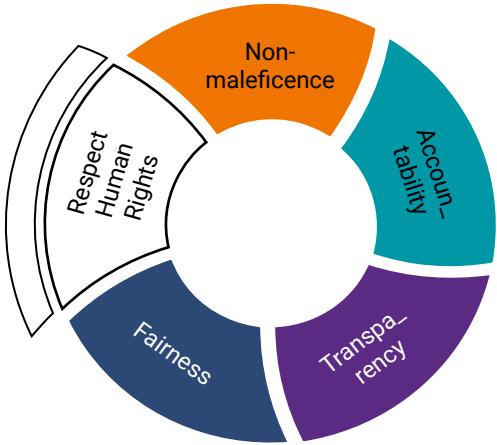
Fair

- Trials
- Elections
- Education



Ethics

- Respect to human rights
 - Privacy
 - Security
 - Freedom
 - Inclusion
- Sensitive data
 - Use
 - Big data & surveillance
 - Leaking
 - Input to “trick” the model
- Fair
 - Trials
 - Elections
 - Education
- Individual point of view
 - Do not share
 - Sensitive data
 - Be mindful / Ethical



Social & Environmental impact

huge invisible resources

Carbon footprint

- 20-25 question interaction =~ 500mL of water to cool its data centres
- 1000 images generated = driving 6.5km in a gasoline powered car
- Electronic waste is also a concern
 - The pursuit for hardware upgrades
 - Larger
 - faster



Human labor and Inequality

- Remote labor
 - Content moderator
 - Cheap workers
 - Precarious work conditions
- Underrepresentation
 - In Data
 - In opportunity

Let's double check, how do you feel about AI, now?



Mentimeter, let's go

<https://www.mentimeter.com/app/presentation/n/alndtemizo29vdetz4m1dm6rbexh1qbj/present?question=853rx2w7uke4>

