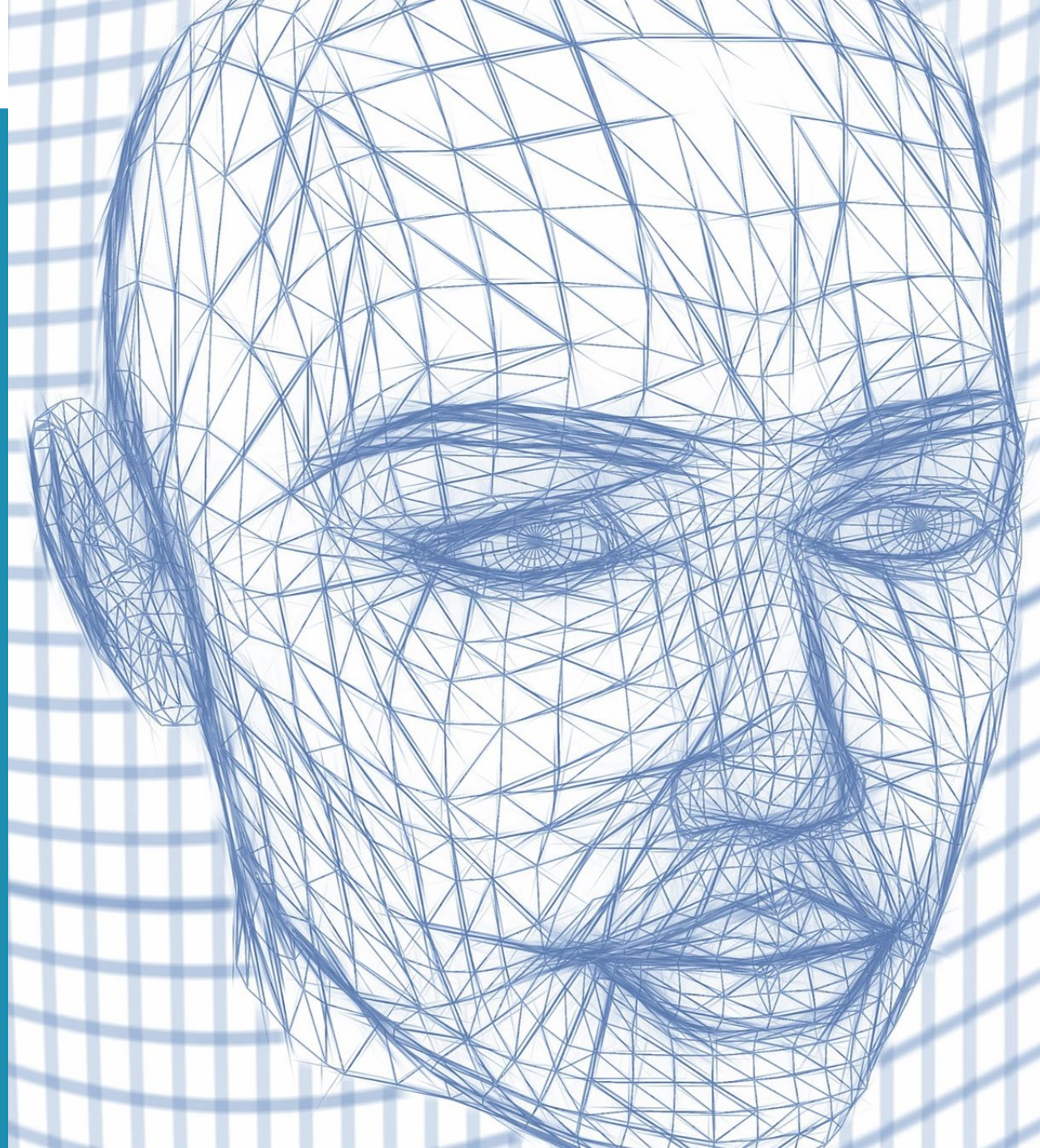


**KU LEUVEN**

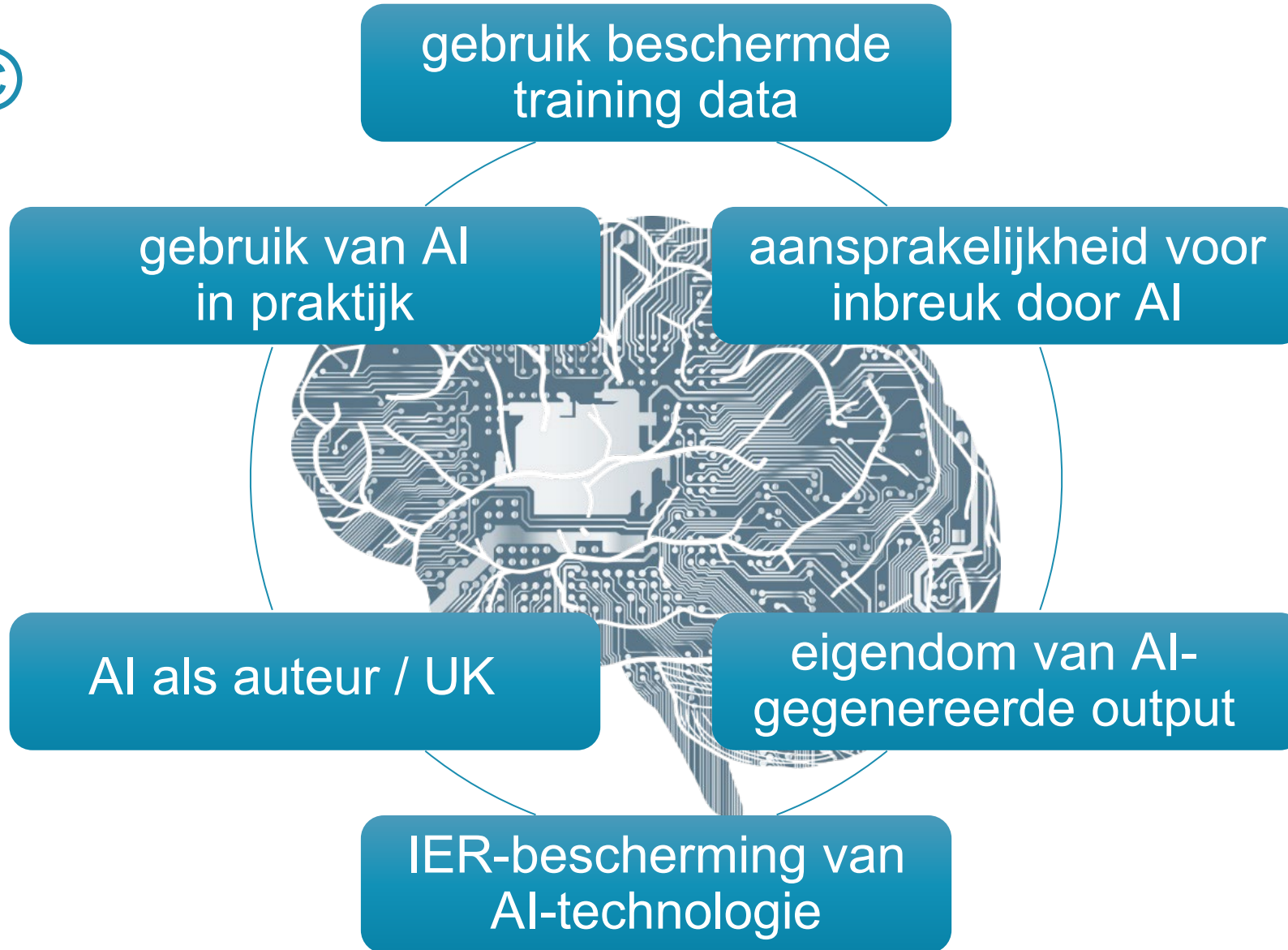
# AL-AI Parijs 2023

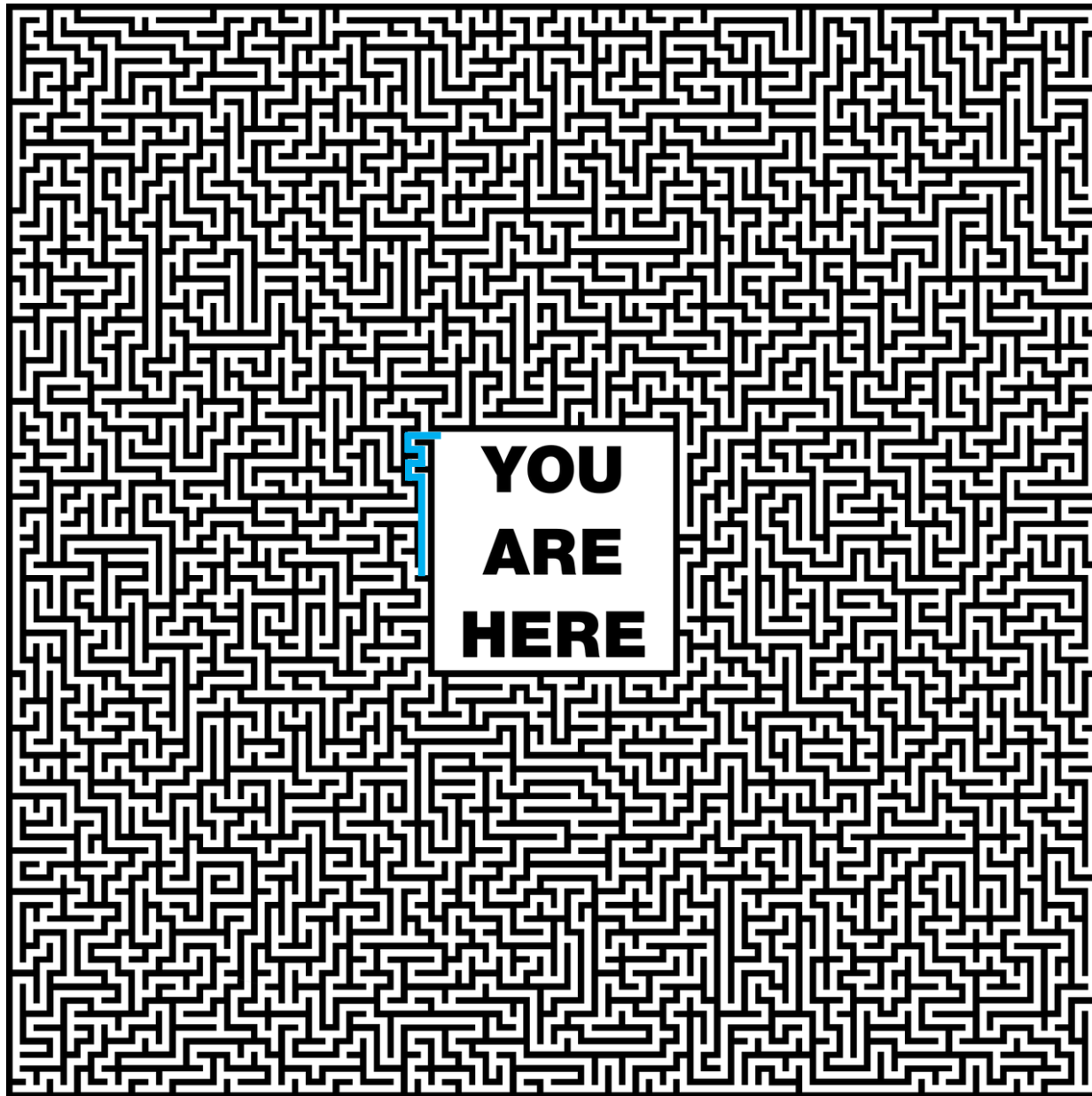
## Een *tour d'horizon*

prof. dr. Jozefien Vanherpe  
2 oktober 2023



# AI en ©





**DE ULTIEME  
ANALYSE VAN  
AI EN ©**



February 2022



## **Study on copyright and new technologies:**

Copyright data management  
and artificial intelligence

# Public Views on Artificial Intelligence and Intellectual Property Policy

October 2020



# Trends and Developments in Artificial Intelligence

## Challenges to the Intellectual Property Rights Framework

Third Session – November 4, 2020



Artificial Intelligence and Intellectual Property Law

‘It's tough to make predictions, especially about the future’

## on IP and Artificial Intelligence

# INTELLECTUAL PROPERTY AND ARTIFICIAL INTELLIGENCE

## A literature review



2020/2015(INI)

Intellectual property rights for the development of artificial intelligence technologies

**PARIS CONGRESS  
ALAI 2023  
ARTIFICIAL INTELLIGENCE, COPYRIGHT AND RELATED RIGHTS  
JUNE 22-23, 2023**

**Answers Belgium  
Jozefien Vanherpe**

# Bescherming van AI-technologie



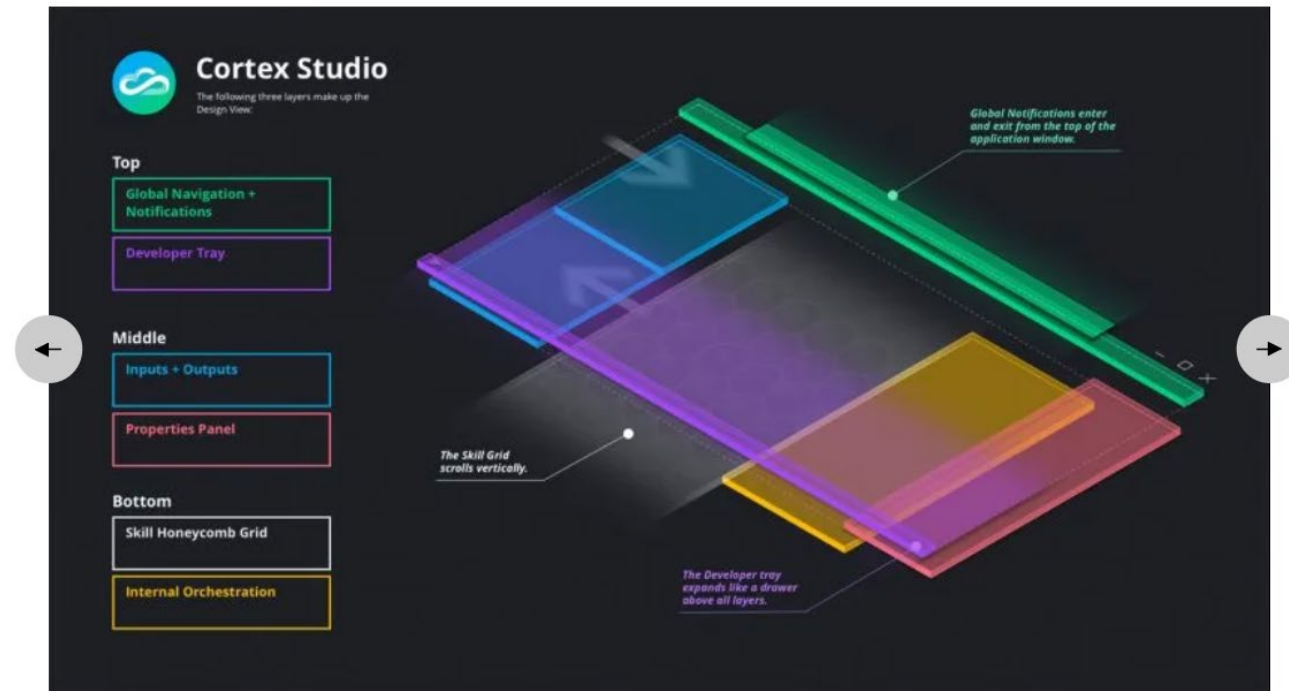
# Auteursrecht

- Idee-expressie dichotomie
  - geen bescherming van algoritme als zodanig wegens te abstract
- Bescherming van software
  - bron- en objectcode: specifiek beschermingssysteem < SoftwareRL
  - origineel *graphic user interface* (GUI): bescherming onder traditioneel auteursrecht
    - visuele componenten die de gebruiker ziet en kan gebruiken
    - zie voorbeeld op volgende slide



# This Is The World's First Graphical AI Interface

Designed by Argodesign and CognitiveScale, Cortex offers a glimpse at the future of accessible AI design tools.



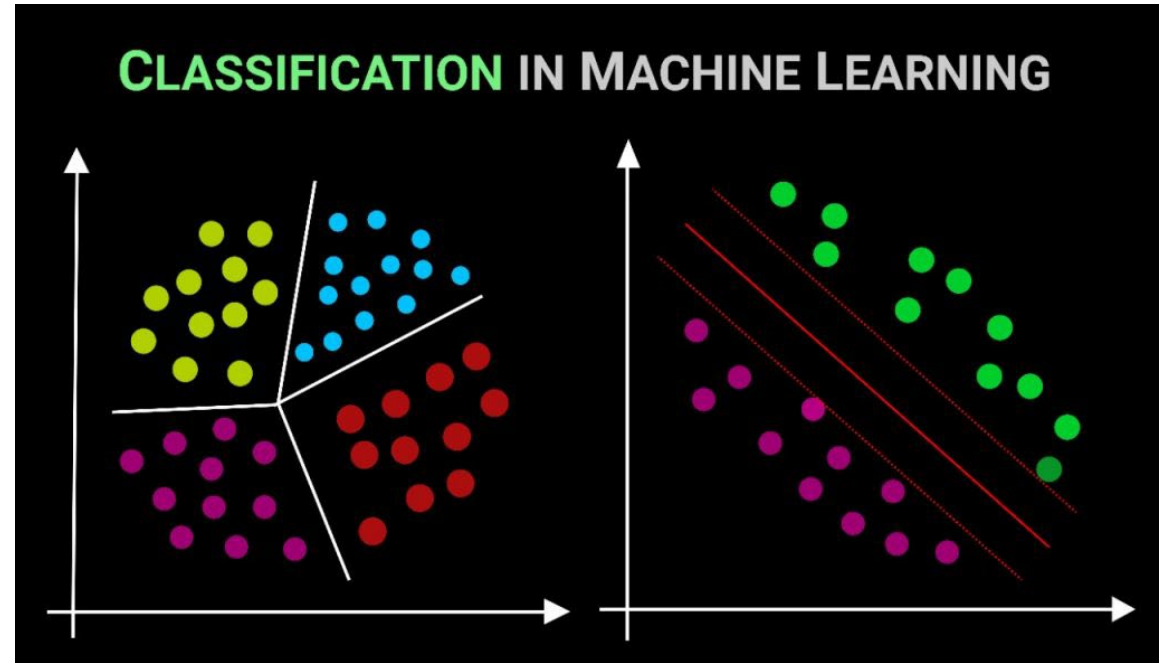
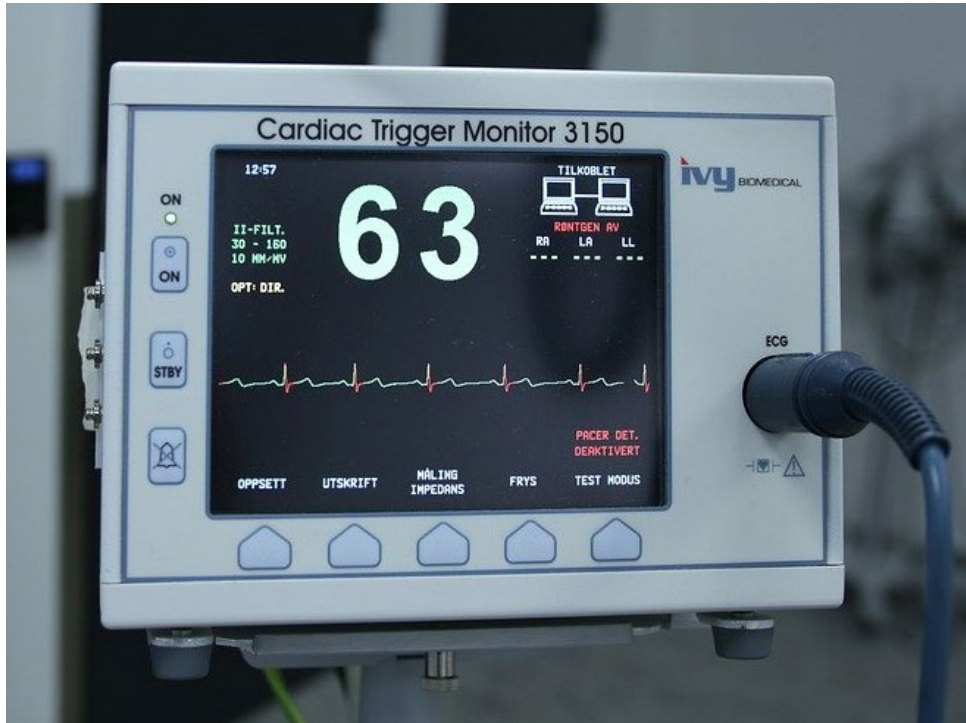
1/7 [Image: argodesign]



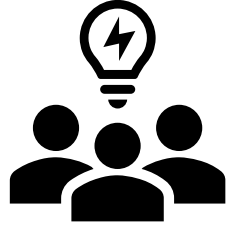
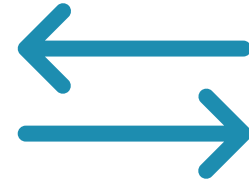
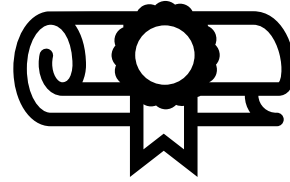
BY KATHARINE SCHWAB 8 MINUTE READ

# Octrooirecht

- Uitgesloten materie: geen technisch karakter (art. 52 EOV / art. XI.4 WER)
  - o.a. voor wiskundige methoden en computerprogramma's "als zodanig"
  - geen uitsluiting als verder technisch effect: wiskundige methoden die betrekking hebben op technisch middel / apparaat, *computer-implemented invention* (CII's)
- toepassing op AI – Richtlijnen EOB
  - onderliggende modellen en algoritmes als zodanig: beschouwd als wiskundige methode en dus *als zodanig* niet vatbaar voor octrooibescherming
  - maar als technisch middel / apparaat, bv. computer of sensor die leidt tot technisch karakter voor uitvinding als geheel: wel octrooieerbaar



# Octrooirecht (1)

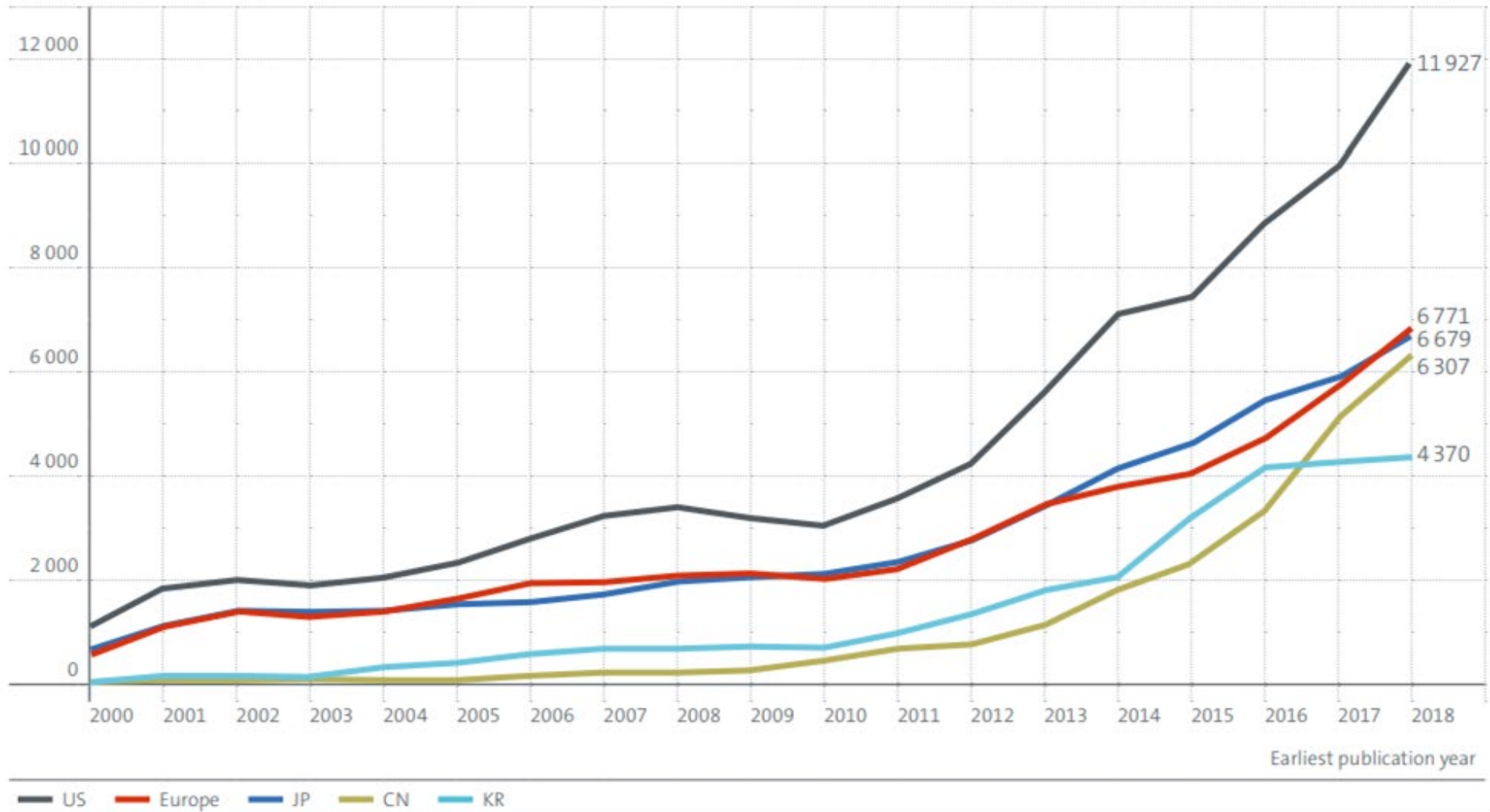


- Vereiste van nawerkbaarheid
  - “*patent bargain*”: exclusiviteit in ruil voor publieke bekendmaking van uitvinding
  - octrooi(aanvraag) moet voldoende duidelijk en volledig zijn om uitgevoerd te worden door vakman
  - vs. “*black-box*”-aard van veel AI-gestuurde technologieën?
    - we kennen parameters, maar niet waarom AI bepaalde beslissing neemt
    - toont belang aan van “*explainable*” AI
    - toch vaak octrooi mogelijk als beschrijving van algoritme, structuur, parameters, training data, ...

# Octrooirecht (2)

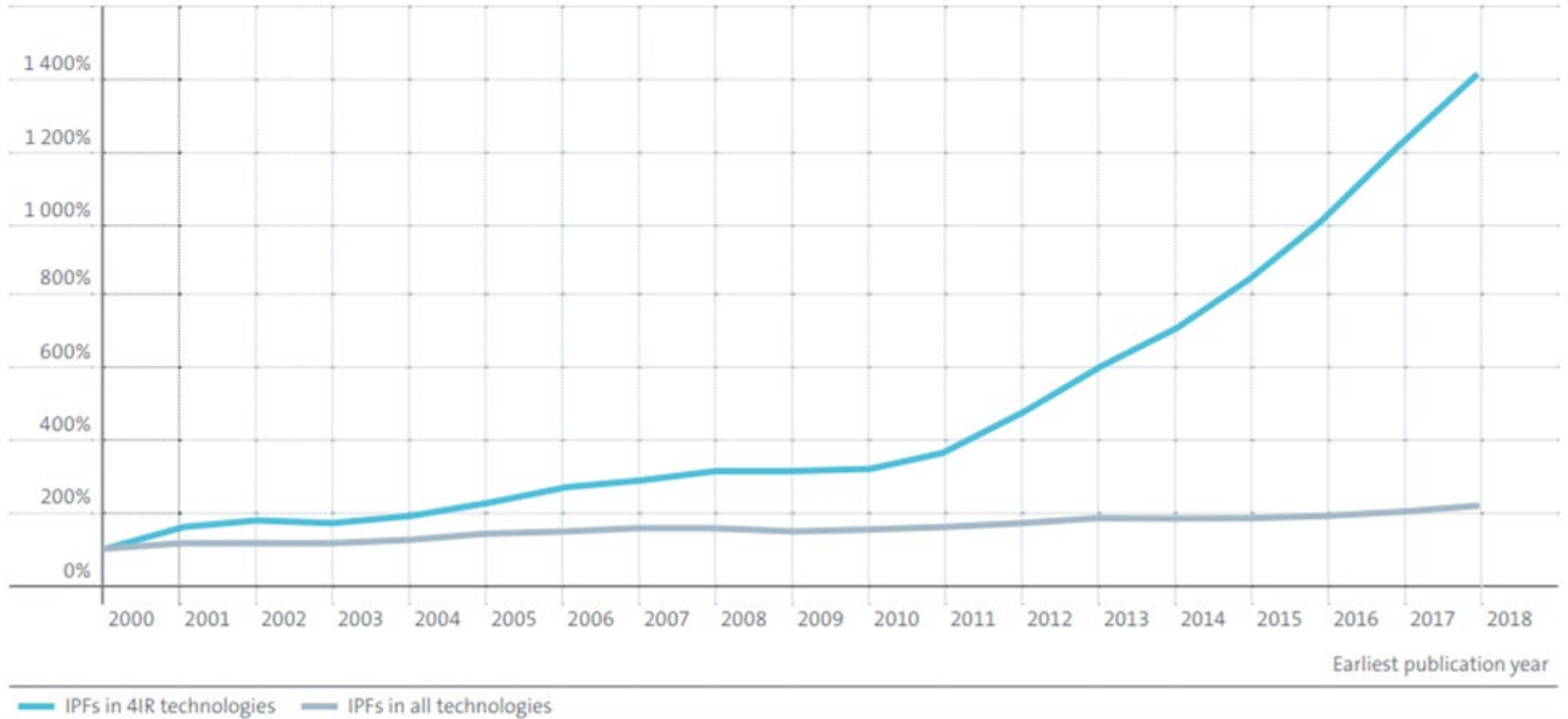
- Geldigheidsvereisten
  - geen specifieke uitdagingen voor vereisten nieuwheid – uitvinderswerkzaamheid – industriële toepasbaarheid in AI-context, maar specifieke toepassing is nog onduidelijk in de praktijk en wordt verder ontwikkeld in rechtspraak (bv. van EOB)
  - als te strikte interpretatie van geldigheidsvereisten: risico dat men consequent een beroep zal doen op bedrijfsgeheimen; risico voor innovatie?
  - ondanks alle obstakels: veel octrooien op AI-gestuurde technologie (zie volgende slides)

## Growth of IPFs in 4IR technologies by global innovation centres, 2000-2018



Source: European Patent Office

## Global growth of IPFs in 4IR technologies versus all technology fields, 2000-2018



Source: European Patent Office

# Regulering van AI







VIDEO

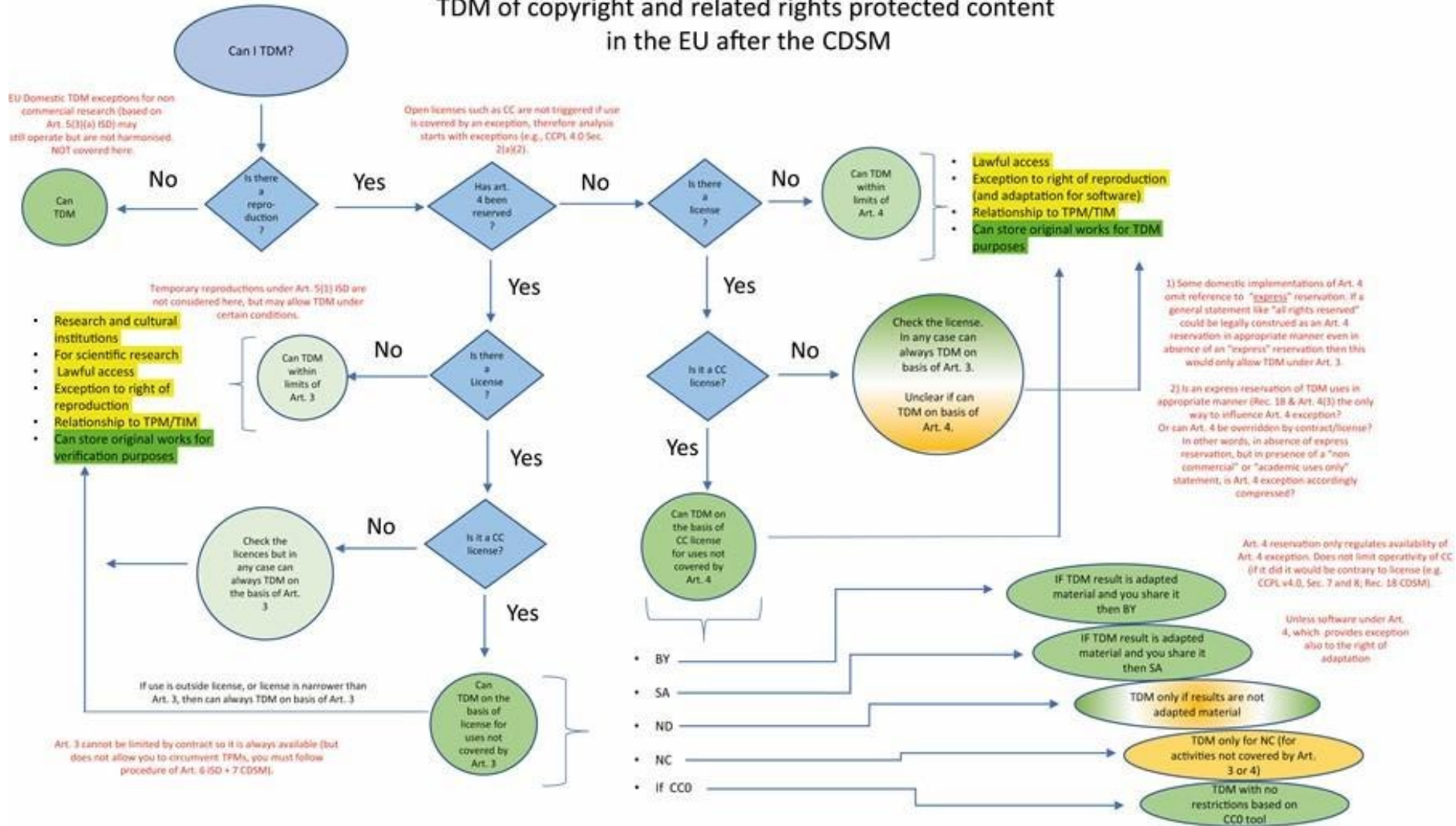
AUDIO

developer

user



# TDM of copyright and related rights protected content in the EU after the CDSM





Committee on the Internal Market and Consumer Protection  
Committee on Civil Liberties, Justice and Home Affairs

16/5/2023

**KMB/DA/AS**

**Version: 1.1**

**DRAFT Compromise Amendments**  
**on the Draft Report**

**Proposal for a regulation of the European Parliament and of the Council  
on harmonised rules on Artificial Intelligence (Artificial Intelligence Act)  
and amending certain Union Legislative Acts**

**(COM(2021)0206 – C9 0146/2021 – 2021/0106(COD))**

**Rapporteurs:**  
Brando Benifei & Ioan-Dragoş Tudorache

(Joint committee procedure – Rule 58 of the Rules of Procedure)



SONY

output gegenereerd  
met / door AI

```
graph TD; A[output gegenereerd met / door AI] --- B[auteurschap]; A --- C[eigendom];
```

auteurschap

eigendom







# DALL·E 2



DALL·E 2 is a new AI system that can create realistic images and art from a description in natural language.

TEXT DESCRIPTION

An astronaut    Teddy bears    A bowl  
of soup

riding a horse    lounging in a  
tropical resort in space    playing  
basketball with cats in space

in a photorealistic style    in the  
style of Andy Warhol    as a pencil  
drawing



DALL-E 2



It was seven minutes to ten o'clock in the morning, and it was the only good thing that had happened.

What is it? the painter asked.

The time was six minutes until ten o'clock in the morning, and the wind stirred as the windows were freshly covered with hoar.

The time was three minutes to ten o'clock in the morning, and the conversation was finished while the same interview was over.

It was three minutes to ten o'clock in the morning, and the sheets of coal had been broken.



# 1 the Road

Writer of writer Ross Goodwin

A patch of green grass seemed to be sucking its life, but it was not much to see. A small patch of grass had already been crushed along the sidewalk, and the steps of the lawn were locked.

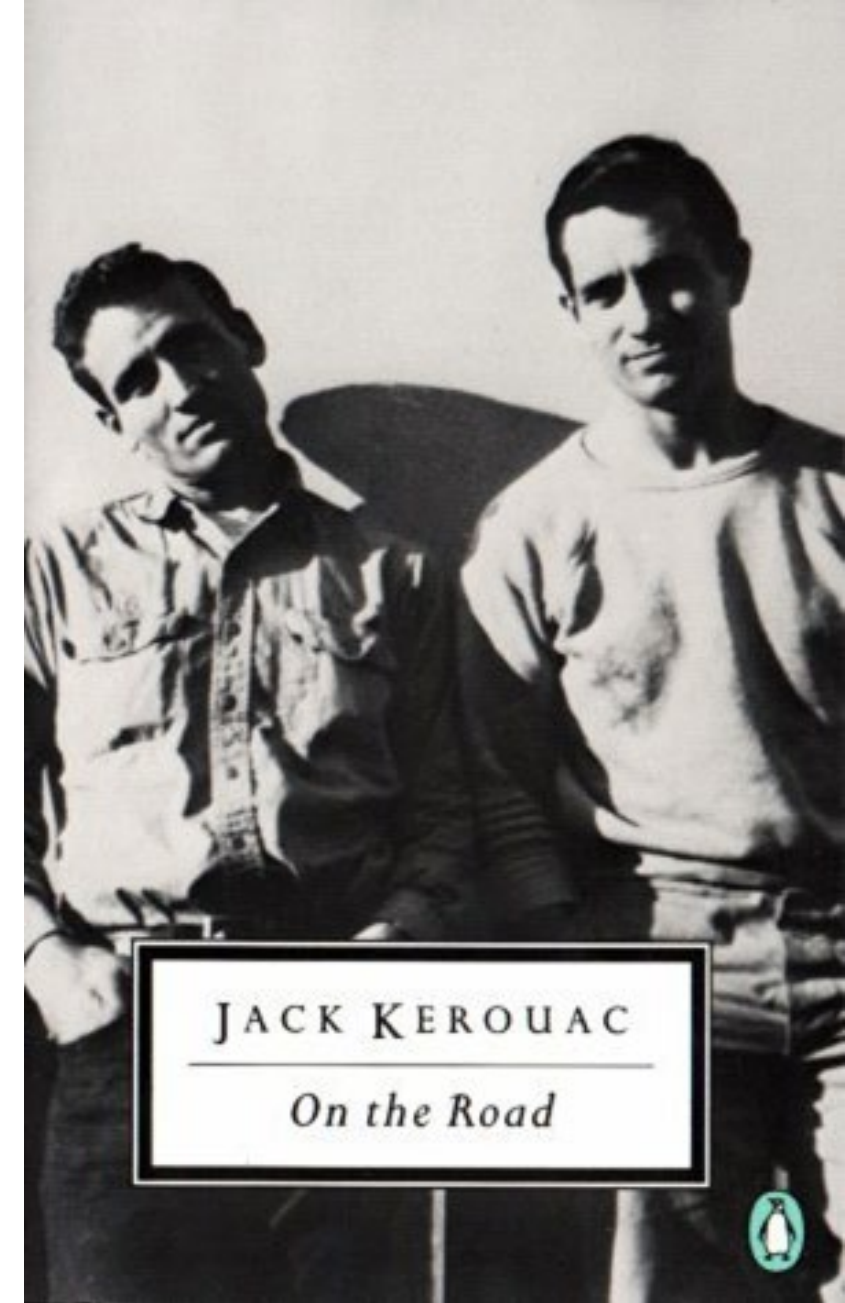
It was ten forty-two in the morning, and the driver had to stay alone and start back from the parking lot.

It was ten forty-three in the morning and

“It was nine seventeen in the morning, and the house was heavy.”



“I first met Dean not long after my wife and I split up. I had just gotten over a serious illness that I won't bother to talk about, except it had something to do with the miserably weary split-up and my feeling that everything was dead.”



The first gonzo Artificial Neural Network is a genius writer

JEAN BOÎTE ÉDITIONS

# AIVA

The Artificial Intelligence composing emotional soundtrack music

Create an account

Already have an account? [Log back in](#)

## Jukebox

We're introducing Jukebox, a neural net that generates music, including rudimentary singing, as raw audio in a variety of genres and artist styles. We're releasing the model weights and code, along with a tool to explore the generated samples.

We've created MuseNet, a deep neural network that can generate 4-minute musical compositions with 10 different instruments, and can combine styles from country to Mozart to the Beatles. MuseNet was not explicitly programmed with our understanding of music, but instead discovered patterns of harmony, rhythm, and style by learning to predict the next token in hundreds of thousands of MIDI files. MuseNet uses the same general-purpose unsupervised technology as [GPT-2](#), a large-scale [transformer](#) model trained to predict the next token in a sequence, whether audio or text.

## An AI that writes music

Musico is an AI-driven software engine that generates music. It can react to gesture, movement, code or other sound.

[▶ LISTEN TO DEMOS](#)




output gegenereerd  
met / door AI

auteurschap

eigendom

cf. analyse naburig recht van uitvoerende kunstenaars

# Huidige situatie: geen auteurschap



auteur = mens  
AI-auteurschap

voldoende causale link met  
menselijke activiteit vereist

“droit d’auteur”

auteur als eerste eigenaar

beschermingsduur

auteurscontractenrecht

morele rechten

“billijke vergoeding”

IP-bescherming als mensenrecht

# Positie US Copyright Office (maart 2023)

## II. The Human Authorship Requirement

In the Office's view, it is well-established that copyright can protect only material that is the product of human creativity. Most fundamentally, the term "author," which is used in both the Constitution and the Copyright Act, excludes non-humans. The Office's registration policies and regulations reflect statutory and judicial guidance on this issue.

When an AI technology determines the expressive elements of its output, the generated material is not the product of human authorship.<sup>31</sup> As a result, that material is not protected by copyright and must be disclaimed in a registration application.<sup>32</sup>

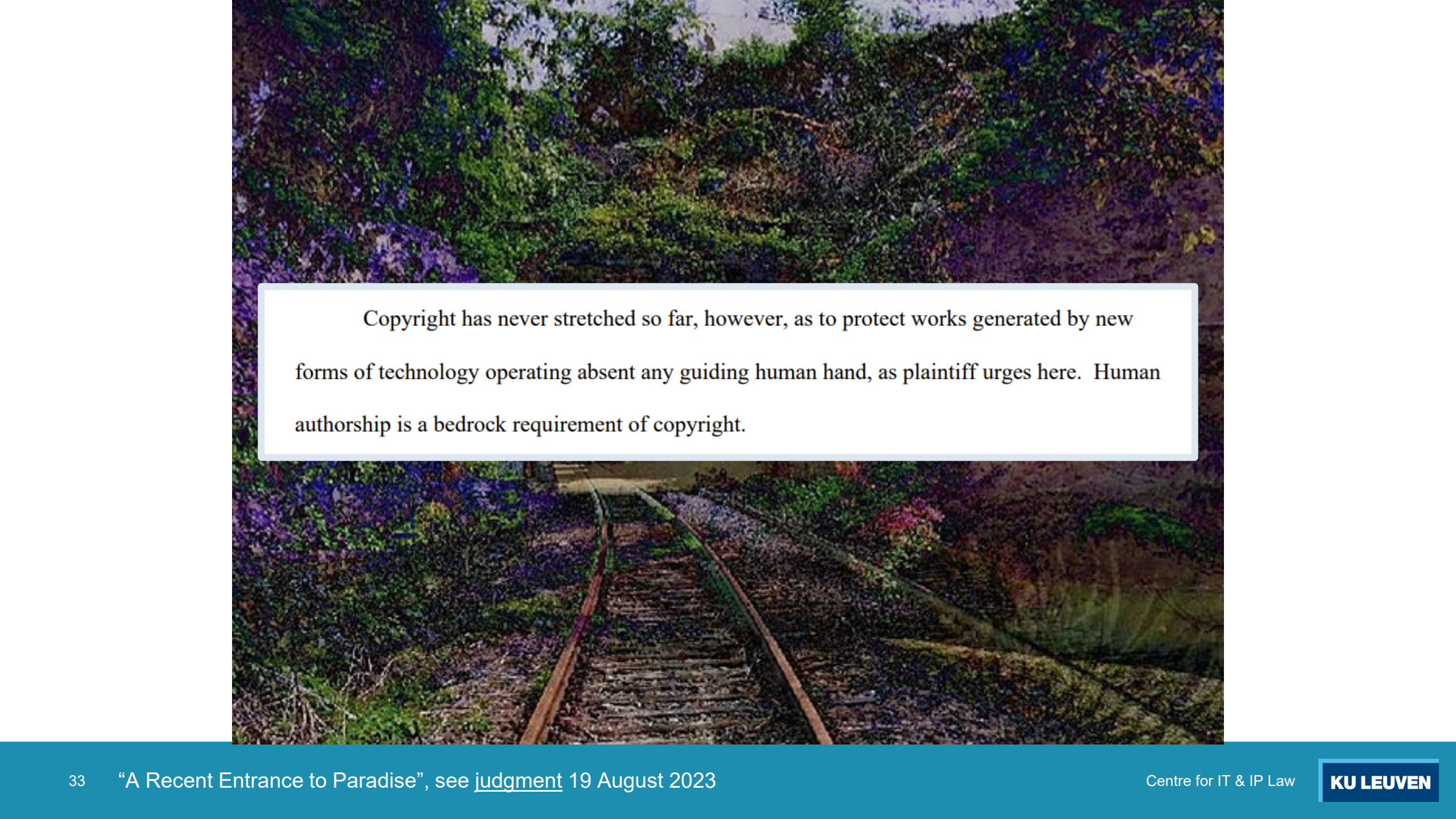
When an AI technology determines the expressive elements of its output, the generated material is not the product of human authorship.<sup>31</sup> As a result, that material is not protected by copyright and must be disclaimed in a registration application.<sup>32</sup>

In other cases, however, a work containing AI-generated material will also contain sufficient human authorship to support a copyright claim. For example, a human may select or arrange AI-generated material in a sufficiently creative way that "the resulting work as a whole constitutes an original work of authorship."<sup>33</sup> Or an artist may modify material originally

generated by AI technology to such a degree that the modifications meet the standard for copyright protection.<sup>34</sup> In these cases, copyright will only protect the human-authored aspects of the work, which are "independent of" and do "not affect" the copyright status of the AI-generated material itself.<sup>35</sup>

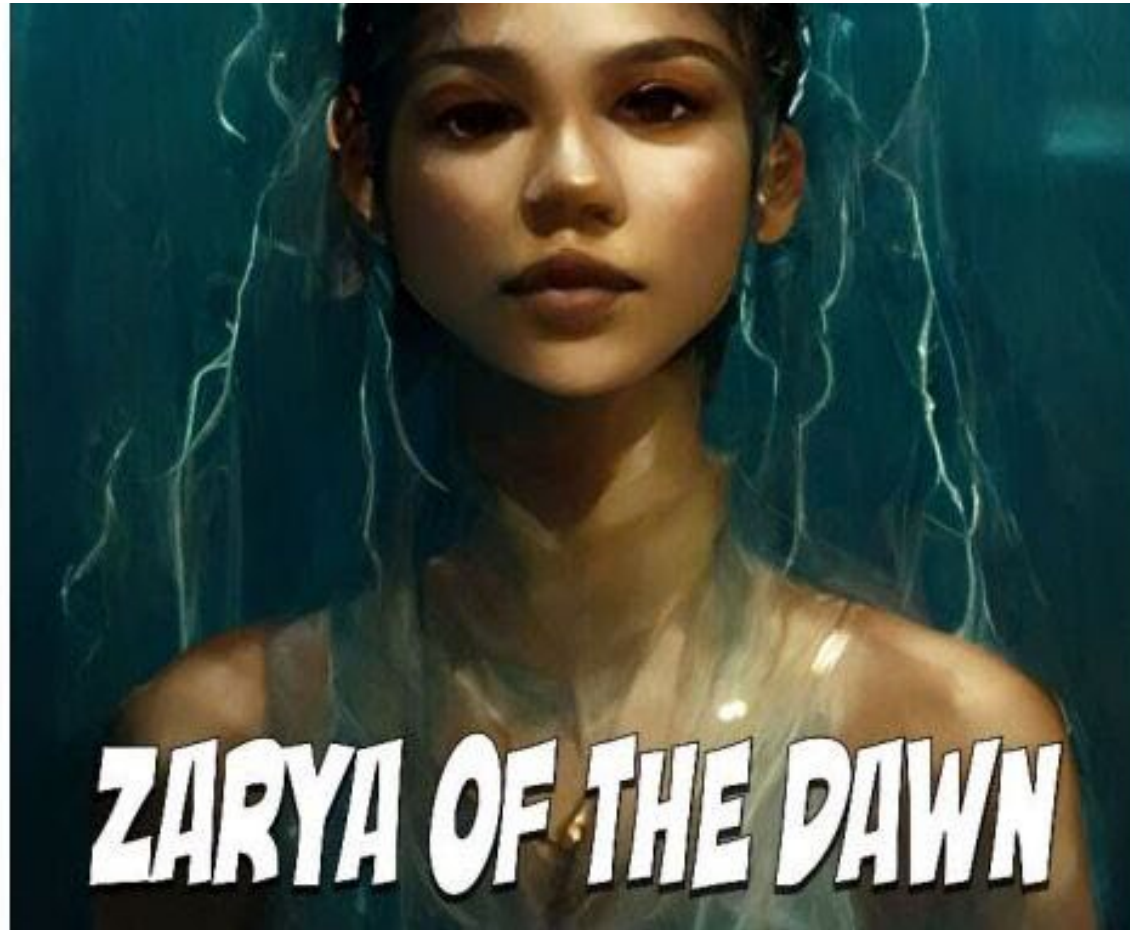
This policy does not mean that technological tools cannot be part of the creative process. Authors have long used such tools to create their works or to recast, transform, or adapt their expressive authorship. For example, a visual artist who uses Adobe Photoshop to edit an image remains the author of the modified image,<sup>36</sup> and a musical artist may use effects such as guitar pedals when creating a sound recording. In each case, what matters is the extent to which the human had creative control over the work's expression and "actually formed" the traditional elements of authorship.<sup>37</sup>



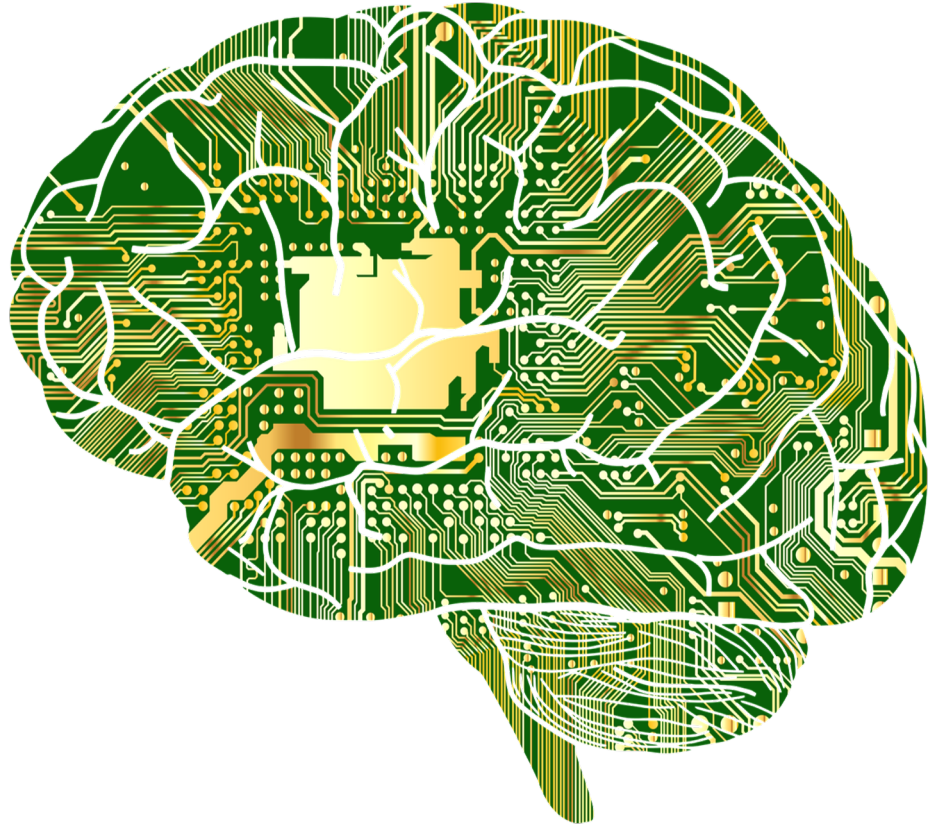
The background of the slide is a painting of a railway track receding into a dense, colorful forest. The tracks are made of wooden sleepers and metal rails, leading the viewer's eye into the distance. The forest is filled with various shades of green, purple, and blue, suggesting a magical or fantastical setting. The overall style is reminiscent of a classic landscape painting.

Copyright has never stretched so far, however, as to protect works generated by new forms of technology operating absent any guiding human hand, as plaintiff urges here. Human authorship is a bedrock requirement of copyright.



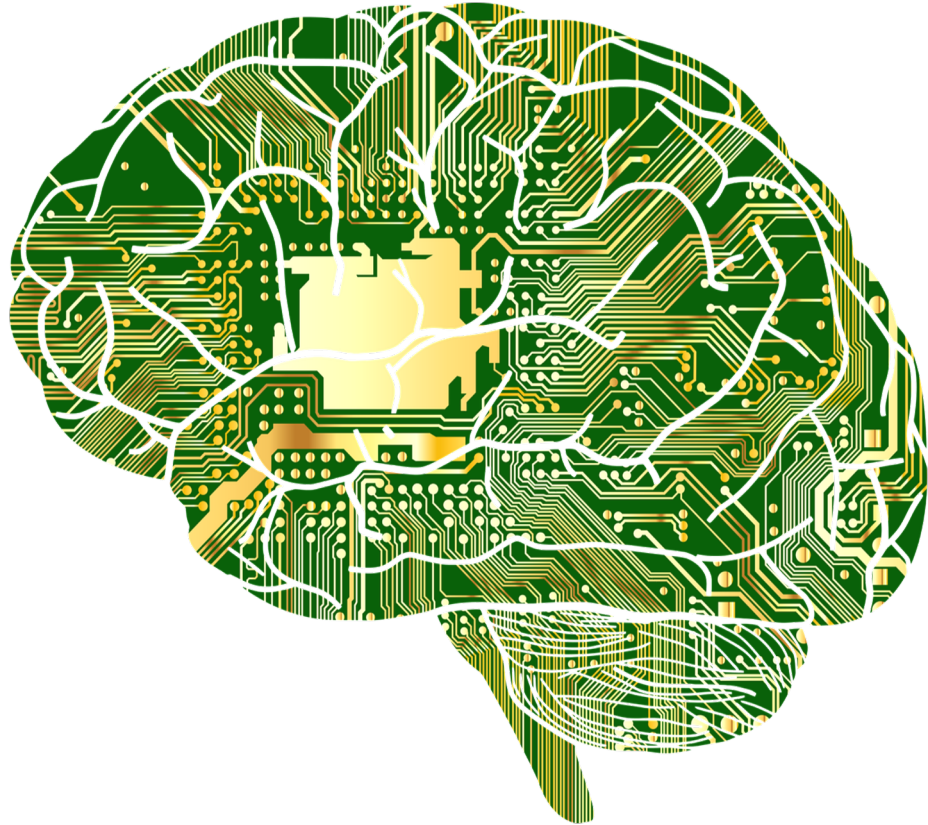


# Beoordeling



- bepaling “causaal verband” moeilijk
- “AI-assisted” vs. “AI-generated”
- “black box”
- bescherming bij toevalscreatie
- welke menselijke bijdrage vereist?
- hoe output met AI onderscheiden?

# Beoordeling (1)



- geen rechtspersoonlijkheid voor AI
- geen echte “conceptie”
- geen bewijs van incentives
- effect op artistieke vrijheid
- modaliteiten: strekking / duur
- debat over eigendom

output gegenereerd  
met / door AI

```
graph TD; A[output gegenereerd met / door AI] --> B[auteurschap]; A --> C[eigendom];
```

auteurschap

eigendom

# Eigendomsvraagstuk

- AI zelf?
- “Schepper”: initiële programmeur, ontwerper
- Trainer AI / eigenaar data
- Gebruiker
- Investeerder
- Gezamenlijke eigendom, of misschien niemand “voldoende” bijdrage om rechten te claimen?
- Publiek domein? alternatieven: bescherming door bv. first-mover advantage, TPM, contracten (maar risico op oneerlijkheid), ... is dit niet genoeg?



AI in de ©-praktijk







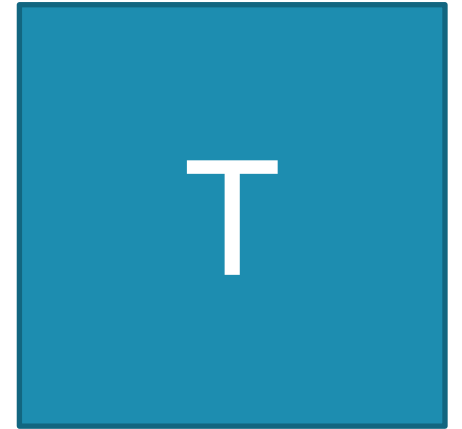
strengths



weaknesses



opportunities



threats



# Opportunities



- algemeen: meer efficiëntie + controle
- identificatie van content + metadata
- uitwisseling en interoperabiliteit
- automatische rapportering
- monitoren legaal gebruik
- opsporen inbreuken ([link](#) naar studie)

# Voorbeelden



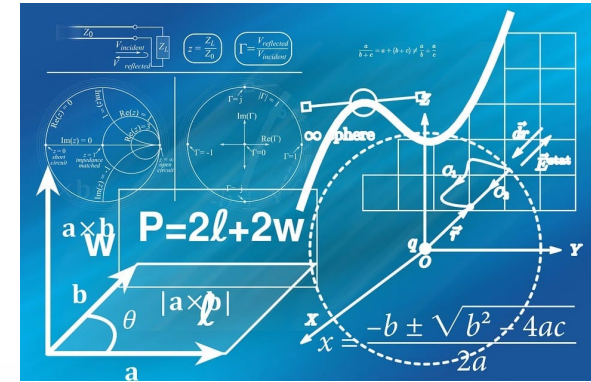
# Risico's



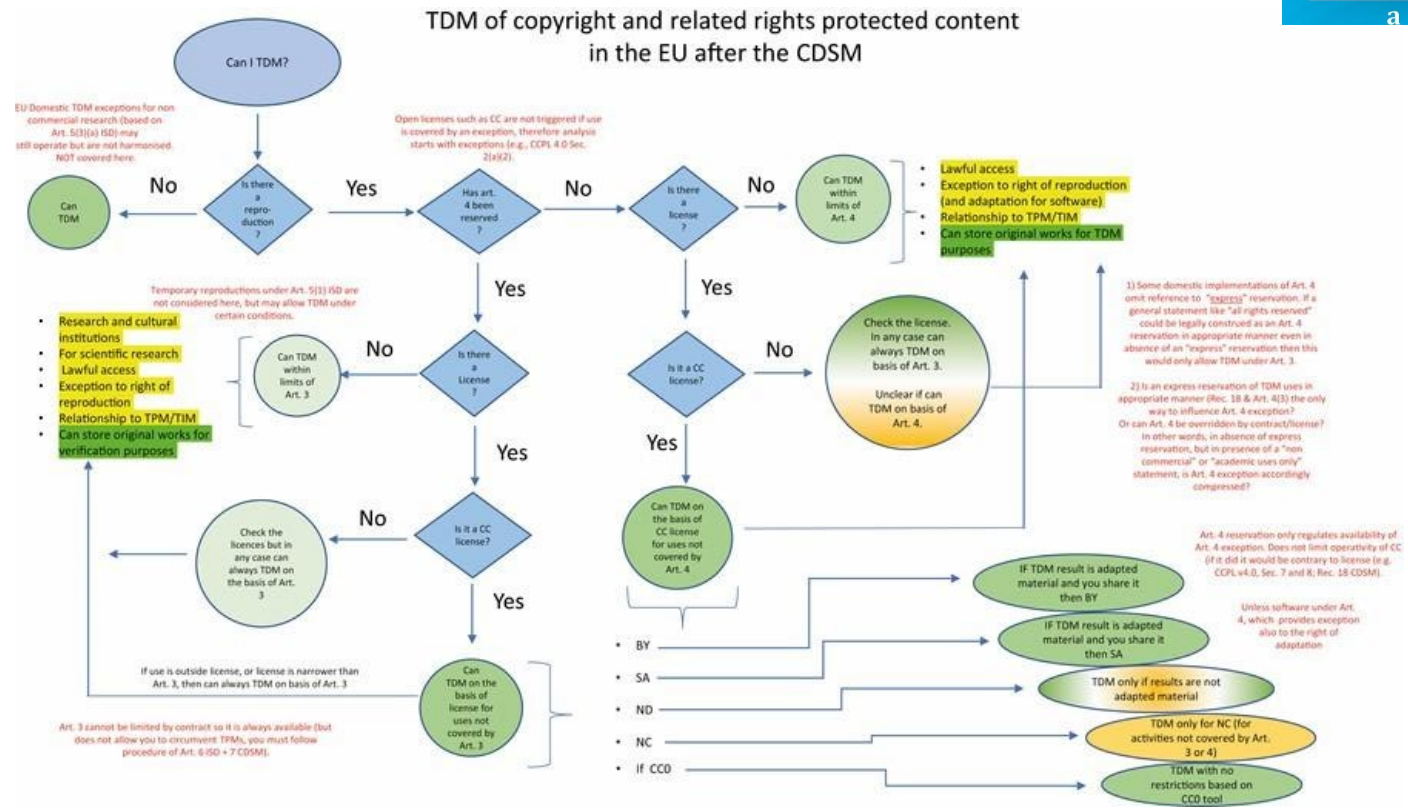
- hoge kosten en complexiteit
- snelle technologische evoluties
- fouten in identificatie content / metadata
- aanmelding van AI-systemen als auteurs?
- privacy en gegevensbescherming?
- gebrek aan menselijke beoordeling

# Risico's (1)

## wat met tekst en data mining? (TDM)



?



# Aansprakelijkheid voor AI-gestuurd systeem



- AI zelf: geen rechtspersoonlijkheid
- menselijke actor achter het systeem?
- mogelijk: “*risk management approach*”
- contractuele afspraken
- zorgvuldigheidscriterium als niet in contract?
- lopende discussies op EU-niveau (vnl. AI Act)

# Regulering van aanbevelings- systemen gebaseerd op AI







We Picked These for You Today



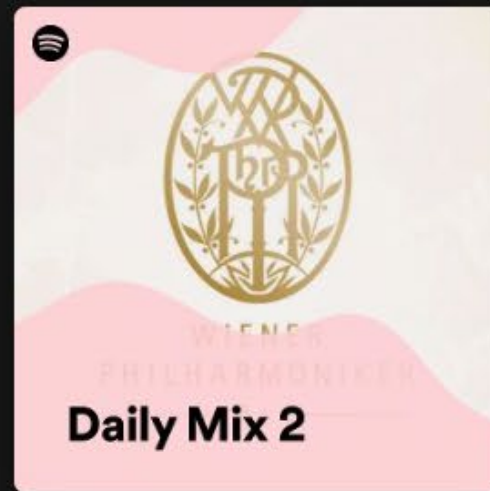
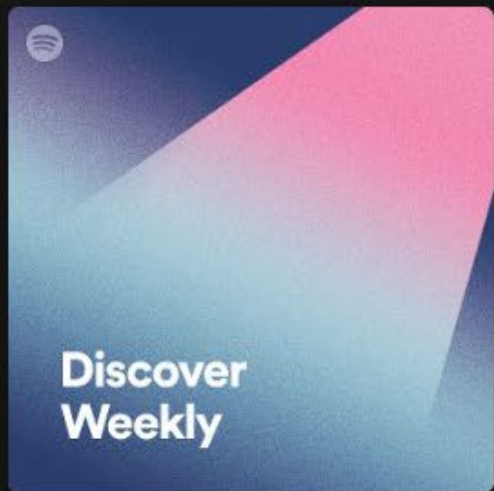
We Bet You'll Like These



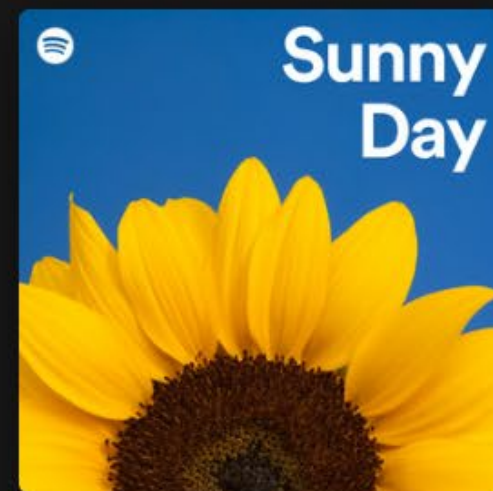
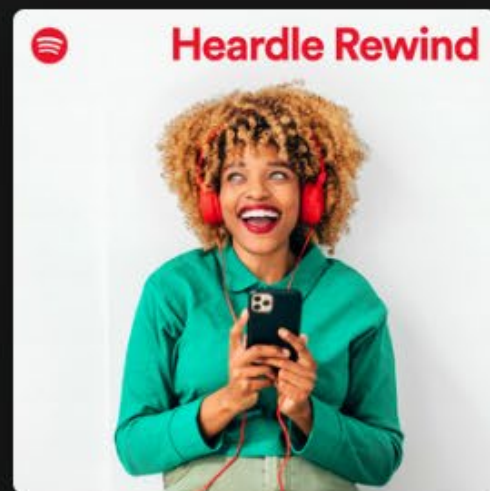
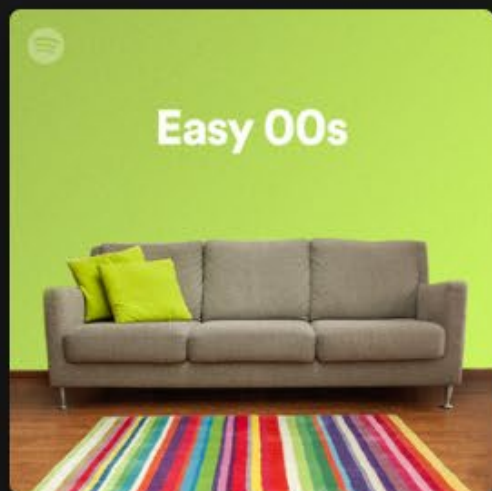
Our Best Recommendations for You



# Made For Jozefien



# Based on your recent listening







Free AWS Training | Focus on the cloud skills most relevant to you—choose from 600+ digital courses across 30+ AWS solutions »

« Machine Learning

# Amazon Personalize

Elevate the customer experience with ML-powered personalization

Get started with Amazon Personalize

**50 TPS hours of real-time recommendations for 2 months**

with the [AWS Free Tier](#)

Unify your data to create meaningful customer experiences across the entire user journey.

Increase revenue and brand loyalty, and stand out from competitors by catering to individual customer preferences.

Quickly implement a customized personalization engine in days—not months—with no ML expertise required.

Adapt recommendations in real time for relevant customer experiences, new users, or new catalog items.

**N** NETFLIX



 YouTube

 Spotify®



 TikTok

 *shopify*

 zalando

 tinder

amazon

ebay

 bumble

**You May  
Also Like**

**Taste in  
an Age of  
Endless  
Choice**



**Tom  
Vanderbilt**

Bestselling author of *Traffic*

“A whirlwind tour of taste  
across its many domains,  
from food and music to  
color and even cats. . . .  
Enormously refreshing.”  
—Sheena Iyengar, *Science*



# Your tracks, prioritized for discovery

With Discovery Mode, artists and labels identify songs that are a priority for them, and our system will add that signal to the algorithms that determine personalized listening sessions. This signal increases the likelihood of the selected songs being recommended, but does not guarantee it.

But it only works if fans love it too. We take note when a listener isn't engaging with a song — including those in Discovery Mode — and factor this in when determining what to recommend next. It's all about harmony.

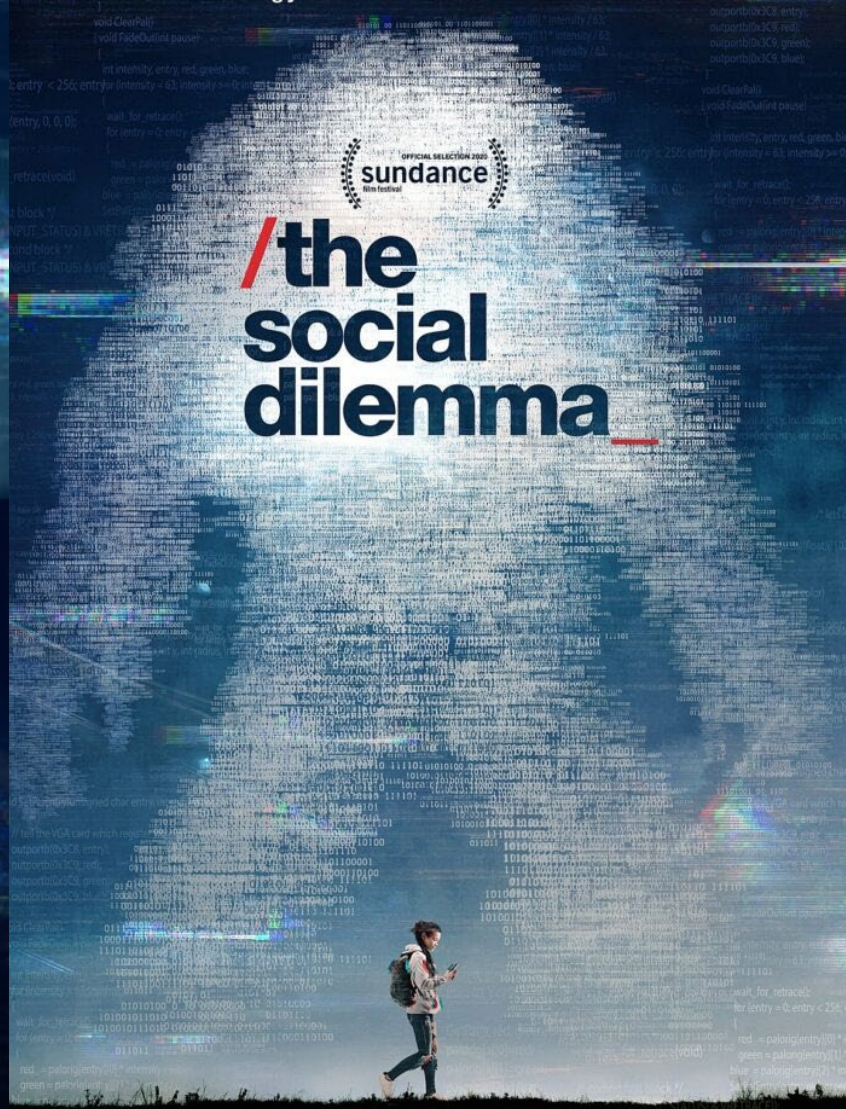
The technology that connects us also controls us.



# /the social dilemma

a film by jeff orlowski

The technology that connects us also controls us.



# /the social dilemma

a film by jeff orlowski

The technology that connects us also controls us.



# /the social dilemma

a film by jeff orlowski





equality

diversity

fairness

soundness

account-  
ability

justice

accuracy

trans-  
parency

privacy

security

reliability

agency

**REGULATION (EU) 2022/2065 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL  
of 19 October 2022  
on a Single Market For Digital Services and amending Directive 2000/31/EC (Digital Services Act)**



(Text with EEA relevance)

*Article 27*

**Recommender system transparency**

1. Providers of online platforms that use recommender systems shall set out in their terms and conditions, in plain and intelligible language, the main parameters used in their recommender systems, as well as any options for the recipients of the service to modify or influence those main parameters.
2. The main parameters referred to in paragraph 1 shall explain why certain information is suggested to the recipient of the service. They shall include, at least:
  - (a) the criteria which are most significant in determining the information suggested to the recipient of the service;
  - (b) the reasons for the relative importance of those parameters.
3. Where several options are available pursuant to paragraph 1 for recommender systems that determine the relative order of information presented to recipients of the service, providers of online platforms shall also make available a functionality that allows the recipient of the service to select and to modify at any time their preferred option. That functionality shall be directly and easily accessible from the specific section of the online platform's online interface where the information is being prioritised.

# Instagram

The image shows a screenshot of an Instagram post. The main content is a graphic with a yellow-to-orange gradient background. The text on the graphic reads: "How the **RANKING**  **ALGORITHM** Works on  REELS". A white play button icon is overlaid on the word "ALGORITHM".

The post is from the account "creators" (verified), which is followed by the user. The caption reads: "We're pulling back the curtain to show how the ranking algorithm works for Reels 🔍 Here's how we:"

- ✔ Determine which Reels to show
- ✔ Look at your history, your activity, and process information within Reels
- ✔ Avoid recommending low resolution content

The post was made 96 weeks ago. It has two comments from "cindycathlyn" (2 days ago) and "m.techperformance" (2 weeks ago). The bottom of the post shows the standard Instagram interaction icons: heart, comment, share, and bookmark.

**REGULATION (EU) 2022/2065 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL  
of 19 October 2022  
on a Single Market For Digital Services and amending Directive 2000/31/EC (Digital Services Act)**

(Text with EEA relevance)

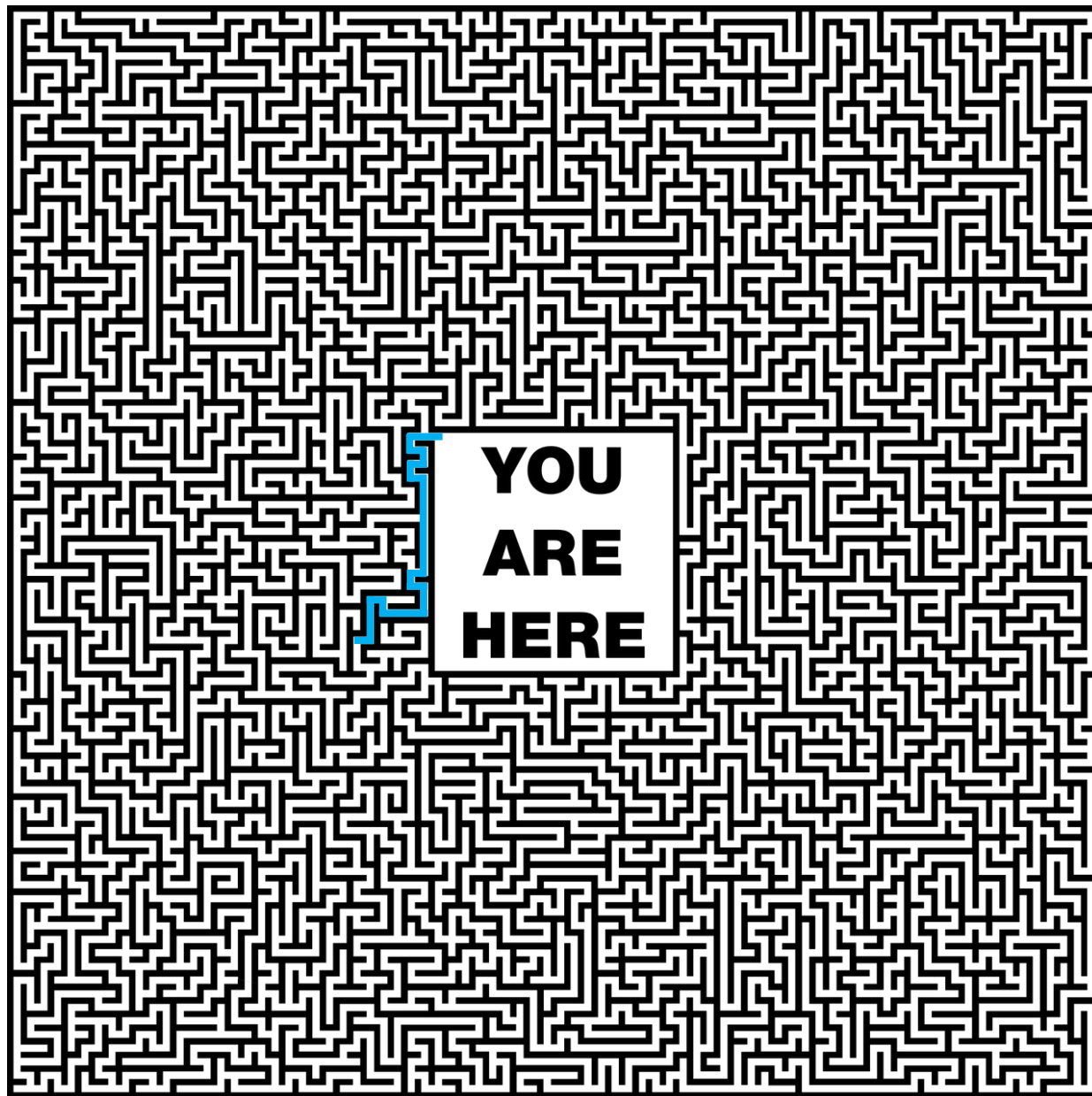
*Article 38*

**Recommender systems**

In addition to the requirements set out in Article 27, providers of very large online platforms and of very large online search engines that use recommender systems shall provide at least one option for each of their recommender systems which is not based on profiling as defined in Article 4, point (4), of Regulation (EU) 2016/679.

# AI Act VLOPs: TBC?





**DE ULTIEME  
ANALYSE VAN  
AI EN ©**

**Bedankt voor uw aandacht!**  
Jozefien.Vanherpe@kuleuven.be

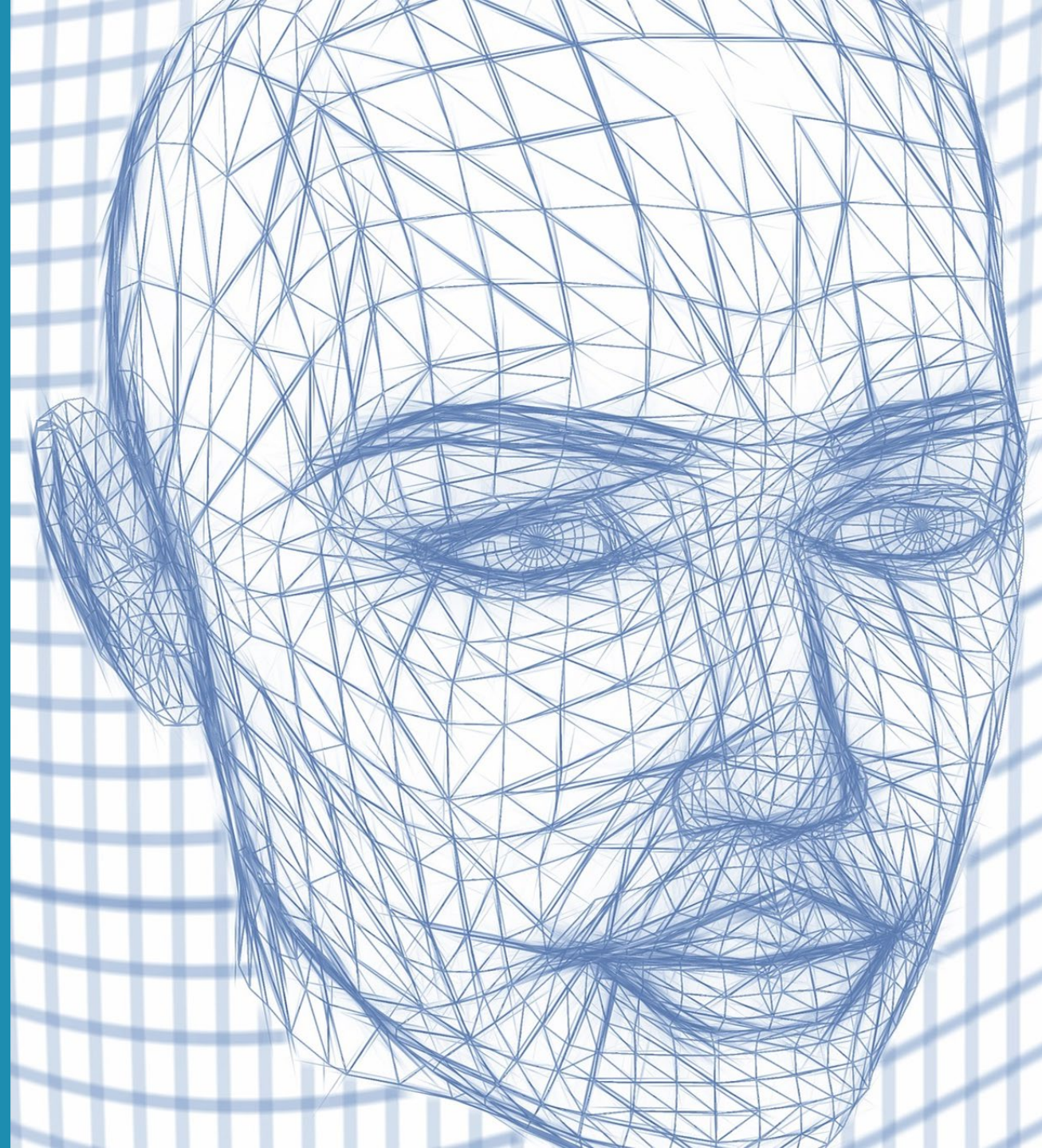
Centre for IT & IP Law (CiTiP)



Twitter



AI en IP





**KU LEUVEN**

# AL-AI Parijs 2023

## Een *tour d'horizon*

prof. dr. Jozefien Vanherpe  
2 oktober 2023

