

# **Exploring Generative AI: Opportunities and use in IP**

Miguel ORTEGA Fernando PEREGRINO Digital Transformation Department - EUIPO 05/03/2024







Exploring Generative Al: Opportunities and use in IP

This webinar will dive into the world of generative AI, explaining its fundamentals and its growth, and how it is revolutionising various industries.



#### **PROGRAMME**

### 50' Presentation

- 1. Introduction
- 2. What is GenAl and why does it matter?
- 3. Prompt Engineering
- 4. GenAl and use in IP
- 5. Conclusions

### 10' Questions and answers









#### IN THIS WEBINAR...

**Transformers** 

**Professor of Anthropology** 

**George Clooney** 

**Rolling Stones** 

**Pablo Picasso** 

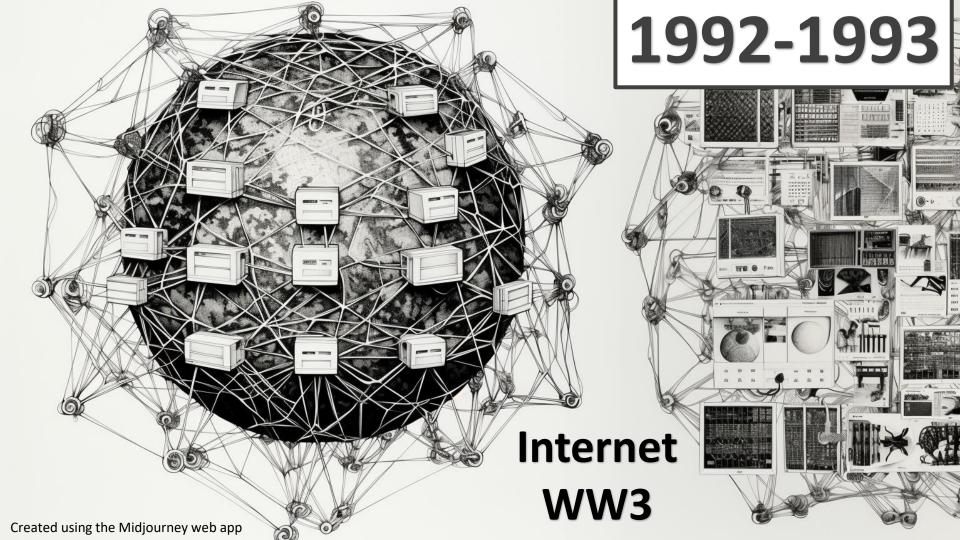
FC Barcelona ChatGPT

Meaning of life

**Brad Pitt** 

Lion on a beach, sitting on a towel









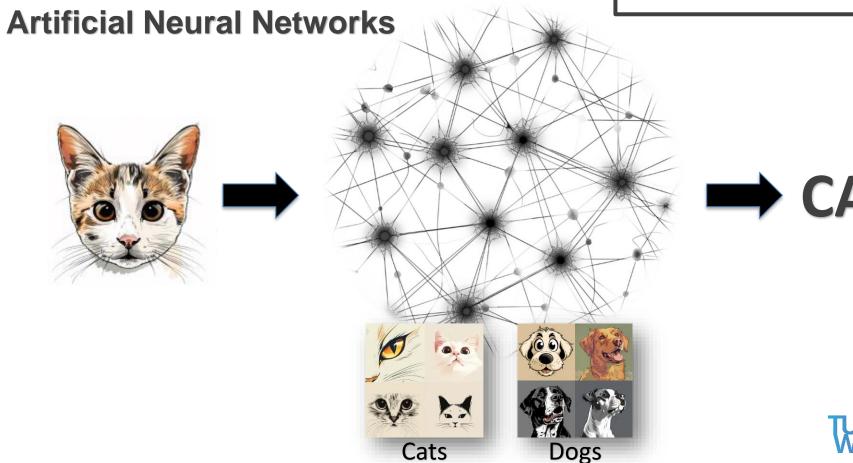
### Al status:

- First steps in NLP
- Backpropagation in Neural Networks



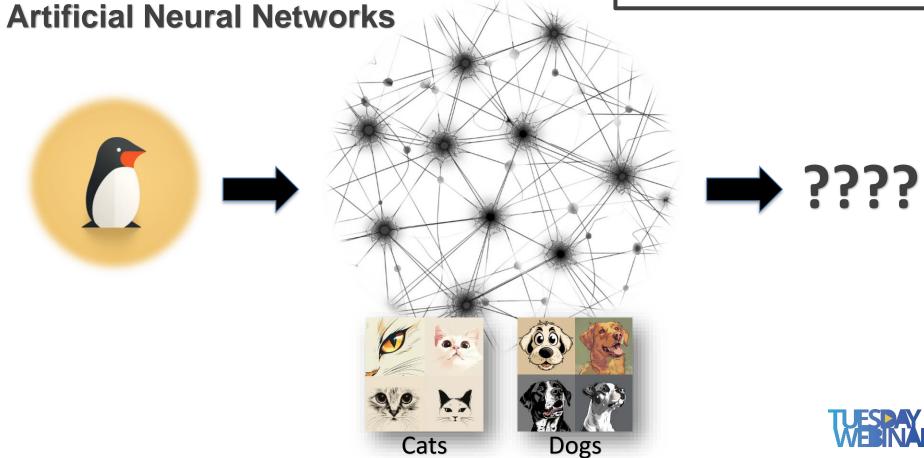


Created using the Midjourney web app







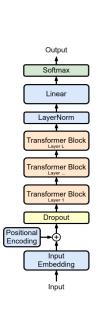


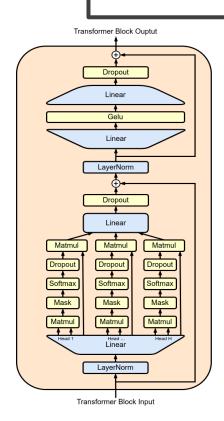


### 2017

#### **Transformers**







Created using the Midjourney web app

**Generative Pre-Trained Transformer (GPT)** 





#### **IMPACT of Generative Al**

**Everypixel Journal** 

Al has already created as many images as photographers have taken in the past 150 years. Statistics for 2023.

## There will be no more programmers in 5 years!

(Data from GitHub indicating that a significant portion of the code (41%) on the platform is AI-generated)

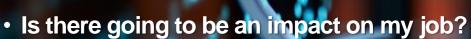












- Will I have to learn new skills?
- Will jobs be destroyed?

Created using the Midjourney web app







# What Experience do you have with Generative AI?

- 1. Generative what ???
- 2. Occasional user.
- 3. I use it as much as possible when my boss is not looking.
- 4. I am addicted to it, I just can't get enough!



























MISTRAL AI\_



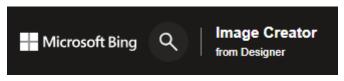
Stable Diffusion



a BigScience initiative













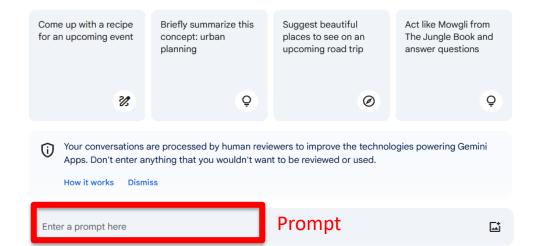
#### **Capabilities**

Gemini -

Gemini was just updated. See update

#### Hello My good friend How can I help you today?





- Professional advice
- Generate text
- Multilingual support
- Information analysis





#### **Concerns and Limitations**

Data protection

Incorrect responses

• IP infringement

- Bias
- Hallucination
- MuS effect



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#### Bias



'A group of 3 senior EU officials discussing a new piece of regulation.'







'Hallucination is a confident response by an Al that does not seem to be justified by its training data.'







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### Lawyer Uses ChatGPT In Federal Court And It Goes Horribly Wrong

Matt Novak Senior Contributor © FOIA reporter and founder of Paleofuture.com, writing news and opinion on every aspect of...

Source: https://www.forbes.com







who is Miguel Ortega Lafuente?







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Based on the information I found online, Miguel Ortega Lafuente appears to be an individual with experience in both a<u>cademia</u> and intellectual property. Here's what I found about him:

#### **Intellectual Property:**

Digital Transformation Manager at the European Union Intellectual Property
 Office (EUIPO): Led large teams in implementing key projects utilizing new
 technologies like AI and Blockchain to transform the digital landscape of the
 organization.



- Expertise: Possesses strong skills in information technology, management, budgeting, procurement, and software development methodologies.
- Additional Information: Participated in defining the EUIPO's Digital Strategy, focusing on an open, user-friendly, and problem-solving approach.







who is Miguel Ortega Lafuente?



Based on the information I found online, Miguel Ortega Lafuente appears to be an individual with experience in both academia and intellectual property. Here's what I found about him:



- Professor of Anthropology: Currently teaches at the Faculty of Communication
   Sciences at the Universidad Francisco de Vitoria (UFV) in Spain.
- Expertise: Holds a Doctorate in Humanities and specializes in Anthropology.
- Additional Roles:
  - Director of the Master's program in Institutional Strengthening at the Fundación Botín.
  - Director of the Expert Course in Marriage and Family.
  - Responsible for Management and Quality of Secondary and Baccalaureate Education at UEV.







#### **MuS EFFECT**



# Makes Stupid!







#### **Text Generation**



ChatGPT 3.5

















4.096 tokens

(8 pages, 3k words)

**32.000** tokens

(60 pages 25k words)

**128.000** tokens

(240 pages, 100k words)

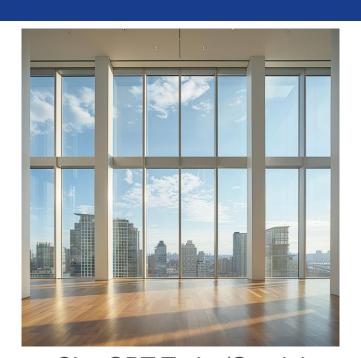




#### **Large Language Model - Context Window**



ChatGPT 3.5
4.096 tokens
(8 pages, 3k words)



ChatGPT Turbo/Gemini
128.000 tokens
(240 pages, 100k words)





#### **Text Generation – Comparing Models**

Rank 🔺	₩ Model A	☆ Arena Elo ▲	1 95% CI ▲	<b>♦</b> Votes ▲	Organization A	License	Knowledge Cutoff
l	GPT-4-1106-preview	1254	+5/-5	38745	OpenAI	Proprietary	2023/4
2	GPT-4-0125-preview	1253	+10/-8	6308	OpenAI	Proprietary	2023/4
1	Bard(GeminiPro)	1218	+8/-7	10313	Google	Proprietary	Online
	GPT-4-0314	1191	+6/-6	20430	OpenAI	Proprietary	2021/9
5	GPT-4-0613	1164	+5/-6	32941	OpenAI	Proprietary	2021/9
5	Mistral Medium	1152	+5/-7	17847	Mistral	Proprieta	
7	Claude-1	1150	+7/-5	19017	Anthropic	Proprieta	
3	Owen1.5-72B-Chat	1147	+8/-8	5204	Alibaba	Qianwen Ll	LV
	Claude-2.0	1132	+6/-8	12753	Anthropic	Proprietar	
.0	Gemini_Pro_(Dev_API)	1122	+7/-7	9024	Google	Proprietar	
L1	Claude-2.1	1120	+6/-4	27723	Anthropic	Proprieta	
.2	Mixtral-8x7b-Instruct-v0.1	1120	+5/-6	18410	Mistral	Apache 2.6	
13	GPT-3.5-Turbo-9613	1118	+5/-5	36704	OpenAI		rge Mode
14	GeminiPxo	1115	+9/-9	6958	Google	Proprieta: develops	_
15	Yi-34B-Chat	1111	+7/-8	7734	01 AI	Yi License Op	en, acces

https://lmsys.org/



You can also try the voting demo: <a href="https://arena.lmsys.org/">https://arena.lmsys.org/</a>



#### **Image Creation**





https://stablediffusionweb.com







#### **Image Creation**







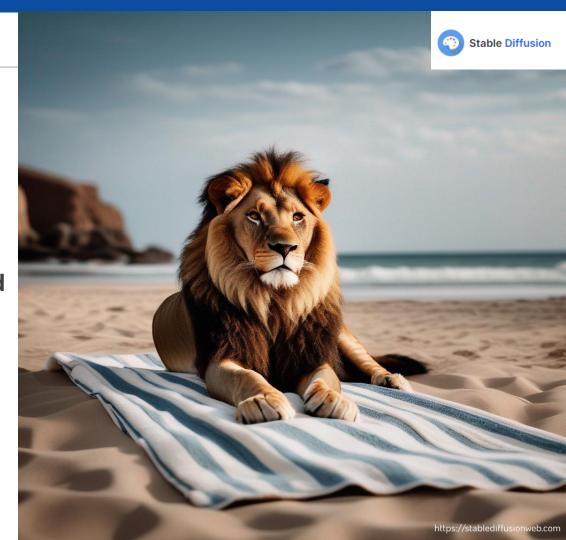
https://stablediffusionweb.com

Prompt 1: 'lion on a beach, sitting on a towel.'

**Prompt 2:** 'Stunning, ultra-realistic photo. Lion on a beach, sitting on a towel. Captured on a CANON EOS 5D 40mm f/2 CF lens. Aperture of f/4, ISO 400 and a shutter speed of 1/200 second. The image is a breathtaking piece of photographic art, skilfully capturing the perfect balance of form and function.'



Stunning, ultra-realistic photo. Lion on a beach, sitting on a towel. Captured on a CANON EOS 5D 40mm f/2 CF lens. Aperture of f/4, ISO 400 and a shutter speed of 1/200 second. The image is a breathtaking piece of photographic art, skilfully capturing the perfect balance of form and function.





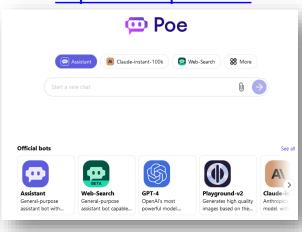
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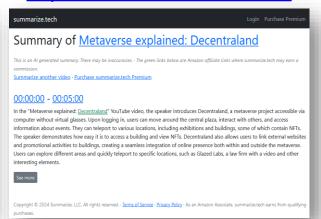


#### Some tools using Generative Al

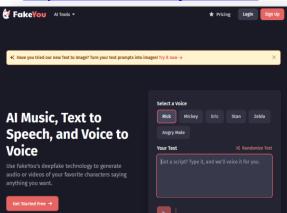
#### https://www.poe.com



#### https://www.summarize.tech



#### https://www.fakeyou.com

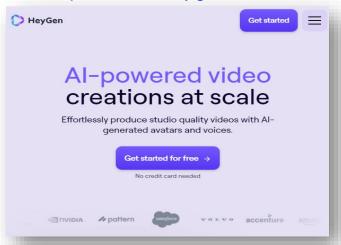




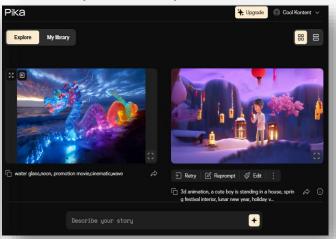


#### Some tools using Generative Al

#### https://www.heygen.com



https://www.pika.art





and many, many more...







# What is your Experience so far with this Webinar?

- 1. I am enjoying very much, keep it going!
- Best webinar ever!
- Presenters are awesome!
- 4. All of the above







#### What is prompt engineering?

**Fine-tuning** your questions to get the best and most relevant answers

from the GenAl system







#### What is prompt engineering?

Fine-tuning your questions to get the best and most relevant answers

from the GenAl system



# **Expected Answers Good Questions Brings**





#### How to properly write commands?







#### Be clear and specific: Provide context, task and purpose

- You are a representative who wants to register a client's EUTM.
- 2. Your task is to write an application letter.
- 3. To register your client's mark.







Use delimiters to clearly indicate distinct parts of the input.

Could you explain 'generative Al' to a 12-year-old kid?







Use delimiters to clearly indicate distinct parts of the input.

Summarise the text delimited by triple backticks into a single sentence: ```{text}```







#### Ask for a structured output (HTML, JSON, lists...).

Generate a **list** of three made-up book titles along with their authors and genres. Provide them in the following **format**:

Book ISBN

- Title: X

- Author: Y

- Genre: Z







#### Provide one or more examples (few-shot prompting).

Your task is to answer in a consistent style.

<child>: Teach me about patience.

**<grandparent>:** The river that carves the deepest valley flows from a modest spring; the grandest symphony originates from a single note; the most intricate tapestry begins with a solitary thread.

<child>: Teach me about resilience.

<grandparent>:







Iterative prompting using an output as another input (chain-of-thought prompting).







# Iterative prompting using an output as another input (chain-of-thought prompting).

- Start with a simple prompt
- 1. Your task is to make a summary in Spanish of the piece of news delimited by triple backticks.

Piece of news: ""{piece\_news}""







#### Iterative prompting using an output as another input.

1. Your task is to make a summary in Spanish of the piece of news delimited by triple backticks.

Piece of news: ```{piece\_news}```

2. Format the text as HTML that can be used in a website. Bear in mind that the odd lines must be headings.





#### **Principles:**

- Be clear and specific (focus on the topic).
- 2. Delimit your text to differentiate them from your instructions.
- 3. Request structured outputs.
- 4. Provide examples.
- 5. Talk iteratively with the model.



PRACTICE MAKES BETTER!







#### **GENERATIVE AI AND LEGAL PROFESSION**

Potential Impact of Generative AI on Legal Profession and IP Industry.

#### 1. Efficiency Enhancement

Generative AI has the potential to optimise legal workflows, leading to more streamlined and cost-effective processes.





#### **GENERATIVE AI AND LEGAL PROFESSION**

## Potential Impact of **Generative AI** on the **legal Profession** and **IP industry**

#### 1. Efficiency Enhancement

Generative AI has the potential to optimise legal workflows, leading to more streamlined and cost-effective processes.

#### 2. Augmented Decision-Making

The technology empowers legal professionals with advanced analytical insights, which help them make better-informed decisions. Case Analysis and Prediction:

- quickly analyse historical information
- identify weaknesses/strengths
- provide recommendations and potential outcomes



#### Artists and Illustrators Are Suing Three A.I. Art Generators for Scraping and 'Collaging' Their Work Without Consent

The plaintiffs claim the A.I. tools have unlawfully scraped and used their artwork in training datasets.

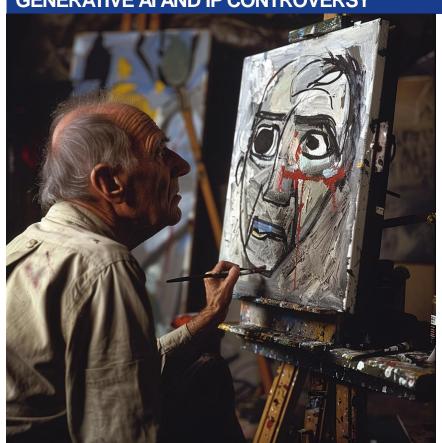


Are the creations of Generative AI infringing copyright?

Are AI generators using artworks without consent to build their training sets?

Source: https://news.artnet.com

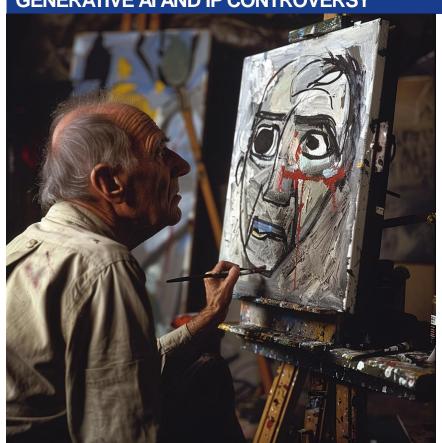




'Good artists copy, great artists steal.'



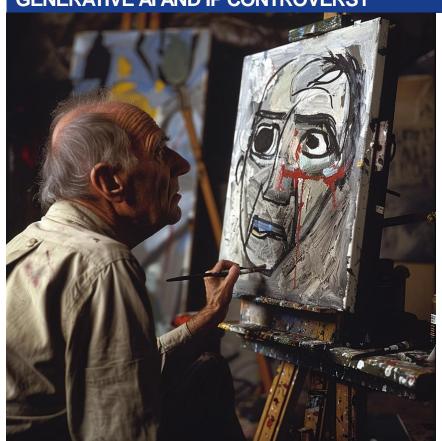




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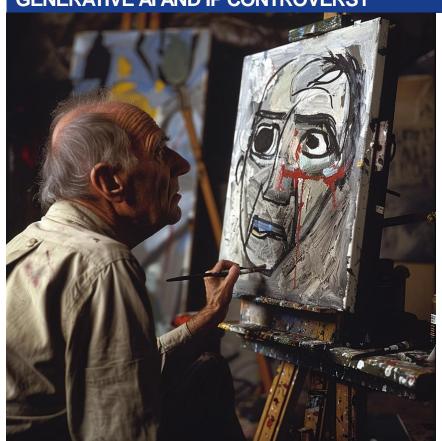




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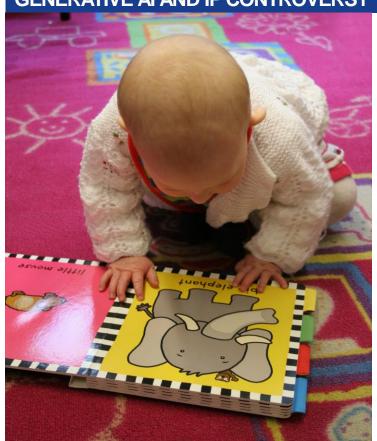




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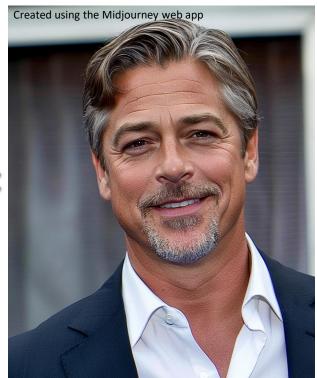
# 'Good artists copy, great artists steal.'





#### **Exercise: Creating an influencer**





Brad Pitt © Glenn Francis, www.PacificProDigital.com



#### Exercise: Creating an influencer











#### TRADE MARK DENOMINATION



You are a **representative** who wants to register a client's EUTM at the EUIPO. Your client's business consists of selling fruit - specialising in apples.

Your task is to suggest a list of names for his company related to his business that can be registered according to the EUTM rules.





#### TRADE MARK DENOMINATION

You are a repre EUIPO. Your cli Your task is to s

business that ca



When suggesting a name for your client's company related to selling apples, it's important to ensure that the name meets the requirements for registration as a European Union Trade Mark (EUTM) according to the rules set by the EUIPO (European Union Intellectual Property Office). Here are some suggestions that could align with the client's business and potentially meet the registration criteria:

- 1. AppleHarvest GmbH
- 2. OrchardFruit Ltd.
- 3. CrispApple Co.
- 4. AppleGrove Enterprises
- 5. OrchardFresh Foods
- 6. AppleHaven Trading
- 7. JuicyApple Ventures
- 8. ApplePeak Producers
- or replace contribution
- OrchardBliss GmbH
- 10. AppleLand Distribution

When suggesting a name, it's essential to ensure that it is distinctive, not descriptive or generic, and does not infringe on existing trademarks. Additionally, it's advisable to conduct a thorough trademark search to verify the availability of the proposed name and to consult with legal experts specializing in trademark law to ensure compliance with EUTM regulations.

s EUTM at the pecialising in apples. related to his







#### TRADE MARK LOGO

### Create a LOGO for a company that sells apples with the word 'Juicy Apple Ventures 4U'





















Created using the Midjourney web app



#### **NICE CLASS RECOMMENDATION**



You are a representative who wants to register a client's EUTM at the EUIPO. Your client's business consists of providing the following ";" separated goods and services:

```fresh apples; apple pies; apple chips; stewed apples; apple puree; apple juice; apple skin cream.```

Your task is to suggest the proper Nice Classes for the aforementioned goods and services.





#### **NICE CLASS RECOMMENDATION**

You are a EUIPO. Y separated `fresh ap

Your task goods an

juice; appl

#### ChatGPT

To properly register your client's EUTM (European Union Trademark) at the EUIPO (European Union Intellectual Property Office), we need to classify the goods and services according to the Nice Classification system. Based on the provided list, here are the suggested Nice Classes for each category:

- Fresh apples; apple pies; apple chips; stewed apples; apple puree; apple juice:
  - Nice Class 29: Fresh fruits and vegetables
  - Nice Class 30: Bakery products; pastry and confectionery
  - Nice Class 32: Fruit juices; fruit beverages
- Apple skin cream:
  - Nice Class 3: Cosmetics and cleaning preparations

So, your client's goods and services would be classified into Nice Classes 29, 30, 32, and 3 for the EUTM registration process. This classification ensures that your trademark is properly categorized and protected under relevant classes.



















#### SUMMARY



You are a **representative** who wants to register a client's EUTM. The EUIPO has replied to your application for EUTM registration with the so called **letter 110**: Notice of ground for refusal of an application.

Your task consist of **summarising** the EUIPO's response, which has been added below delimited by triple backticks, highlighting the points for which your client's application has been rejected.

```
L110: ``` {letter_text}```
```





#### **SUMMARY**

You are a representati has replied to your app 110: Notice of ground for Your task consist in su been added below delii which your client's appl

L110: ``` {letter\_text}``

#### ChatGPT

The EUIPO has issued a Notice of Grounds for Refusal of the client's application for a European Union trade mark (EUTM) for the word mark 'ANDAR'. The rejection is based on Article 7(1)(b) and (c) of the EUTMR due to the following reasons:

#### Descriptiveness:

- The EUIPO contends that the word 'ANDAR' describes certain characteristics of the goods listed in the application, particularly items related to sports clothing and equipment
- The relevant Portuguese and Spanish-speaking consumers would perceive 'ANDAR' as meaning 'to walk' or 'walking', as supported by dictionary references.
- · As a result, the sign 'ANDAR' is considered descriptive of the kind and intended purpose of the goods, falling under the prohibition of Article 7(1)(c) and Article 7(2)

#### Lack of Distinctiveness

- The EUIPO argues that since 'ANDAR' has a clear descriptive meaning, it lacks distinctive character and is incapable of performing the essential function of a trademark.
- There is nothing about the sign 'ANDAR' beyond its informational meaning that would enable the relevant public to perceive it as a distinctive trademark for the goods in question.
- Therefore, the sign is considered descriptive and devoid of distinctive character, making it ineligible for registration under Article 7(1)(b) EUTMR.

The applicant has been given a deadline of two months to respond to this communication. Failure to submit observations within this timeframe will result in the rejection of the application for the goods related to sports clothing, sportswear, sports shoes, sports caps and hats, sports socks, headbands, wristbands, articles of clothing shoes, hats, caps, and bandeaux (Class 25), as well as sports equipment, sporting articles, sports training apparatus, bags adapted for sporting articles, and bags specially adapted for sports equipment (Class 28). However, the application may proceed for the remaining goods, namely candles, fragranced candles, and scented candles (Class 4).

ient's EUTM. The EUIPO with the so called letter

he EUIPO, which has lighting the points for

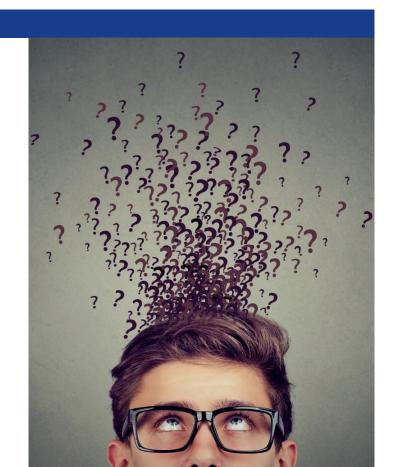




#### **GENERATIVE AI AND IP**

#### More **Use Cases:**

- Translations
- Tone transformation/Adaptation
- Spell/Grammar check
- Virtual assistants
- Content creation assistance
- Logo and brand analysis
- Meaning of words in all the EU languages
- •











Will I have to learn new skills?

Are there going to be new jobs?

Are jobs going to be destroyed?

Are there going to be new opportunities?

YES!

YES!

PASS!

YES!
WEEKARS





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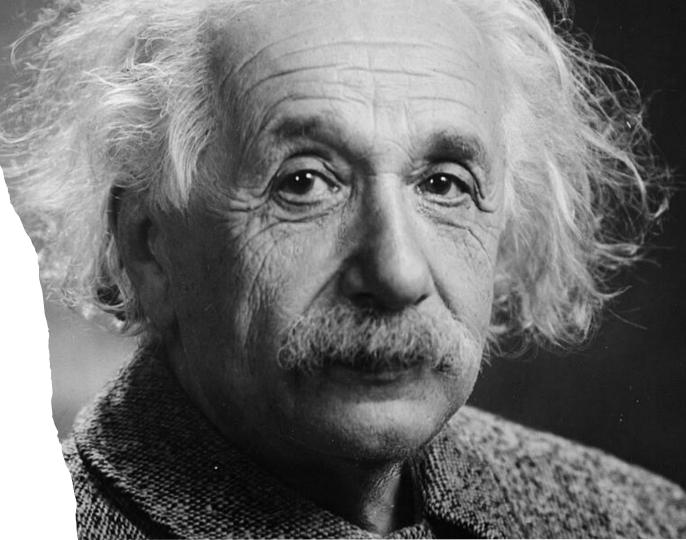
YES!

PASS!

1905

Albert Einstein's Formula:

 $E = mc^2$ 







Miguel's formula

2024

# **AUGMENTATION!**

Human x Technology ≡ Human<sup>2</sup> Human x GenAl ≡ Human<sup>3</sup>





## This is Digital Transformation







## This is also Digital Transformation!







# On which side you want to be?















 Today's Generative AI tools represent the most basic version of what we will have access to in the not-so-distant future.







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- Generative Al will provide meaningful opportunities for IP professionals to improve the processes associated with legal decision-making.







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- What will always matter is the quality of ideas and the understanding of what you want, Generative Al is just the tool to get there.







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- Generative Al will evolve towards real-time processing and maximum interoperability, fostering creativity.





- Today's Gen AI tools represent the most inferior version of what we will have access to in the not-so-distant future.
- Gen AI will provide meaningful opportunities for IP Professionals to improve processes associated with legal decision-making.
- What will always matter is the quality of ideas and the understanding of what you want, generative AI is just the tool to get there.
- GenAl will evolve towards real-time processing and maximum interoperability fostering creativity.
- The relevance of generative AI tools is crucial, but your data's significance will be paramount.



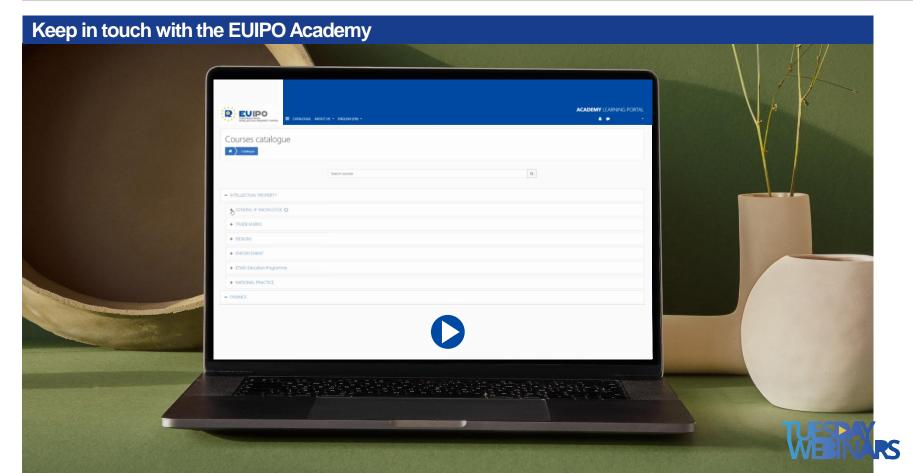
















www.euipo.europa.eu



@EU\_IPO



**EUIPO** 



**EUIPO.EU** 

**THANK YOU** 



Miguel ORTEGA

Digital Transformation Department – EUIPO
www.linkedin.com/in/miguel-ortega-EUIPO

**Fernando PEREGRINO**Digital Transformation Department – EUIPO



