



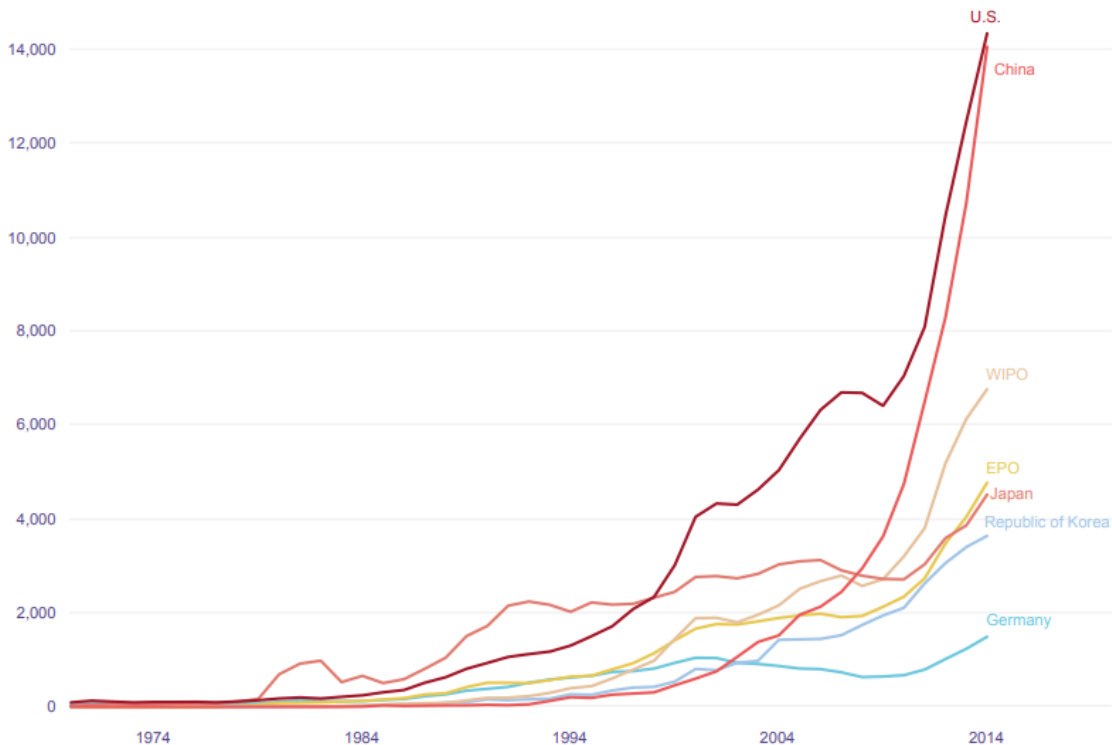
**KASZNAR
LEONARDOS**

P"AI"TENTS – are AI GENERATED inventions protectable?

JUNE/2024



EVOLUTION OF AI APPLICATIONS



Source: (Wipo 2019)
WIPO Technology Trends - AI

1956

First mention of the term “AI”

1993-2011

AI become data driven, computers increase in power

1994

Dr. Stephen Teller discloses the “creativity machine”

2012-today

More data and greater computer power bring “AI patent boom”

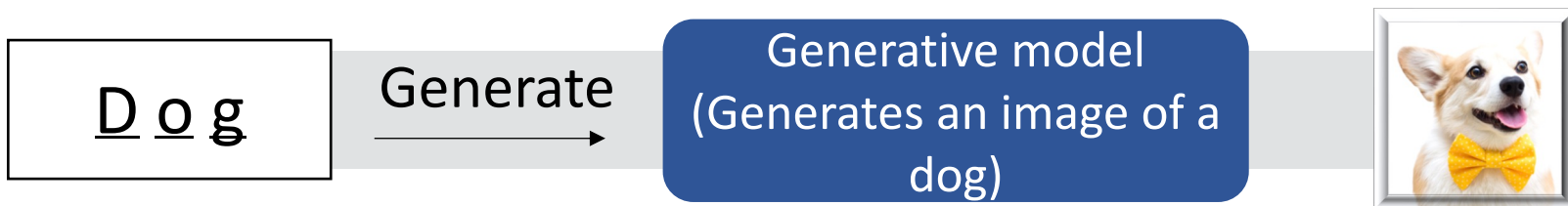
2020

ChatGPT is first launched

- ◆ Regular AI systems are used for data analysis or decision making.



- ◆ Generative AI systems create content and internally evaluate its outputs



- ◆ Although Generative AI became very popular by means of a chatbot to interact with users (like ChatGPT), this is not an essential feature of these systems

AI-assisted inventions: Inventions where AI is an integral part of the technical solution – AI as a tool

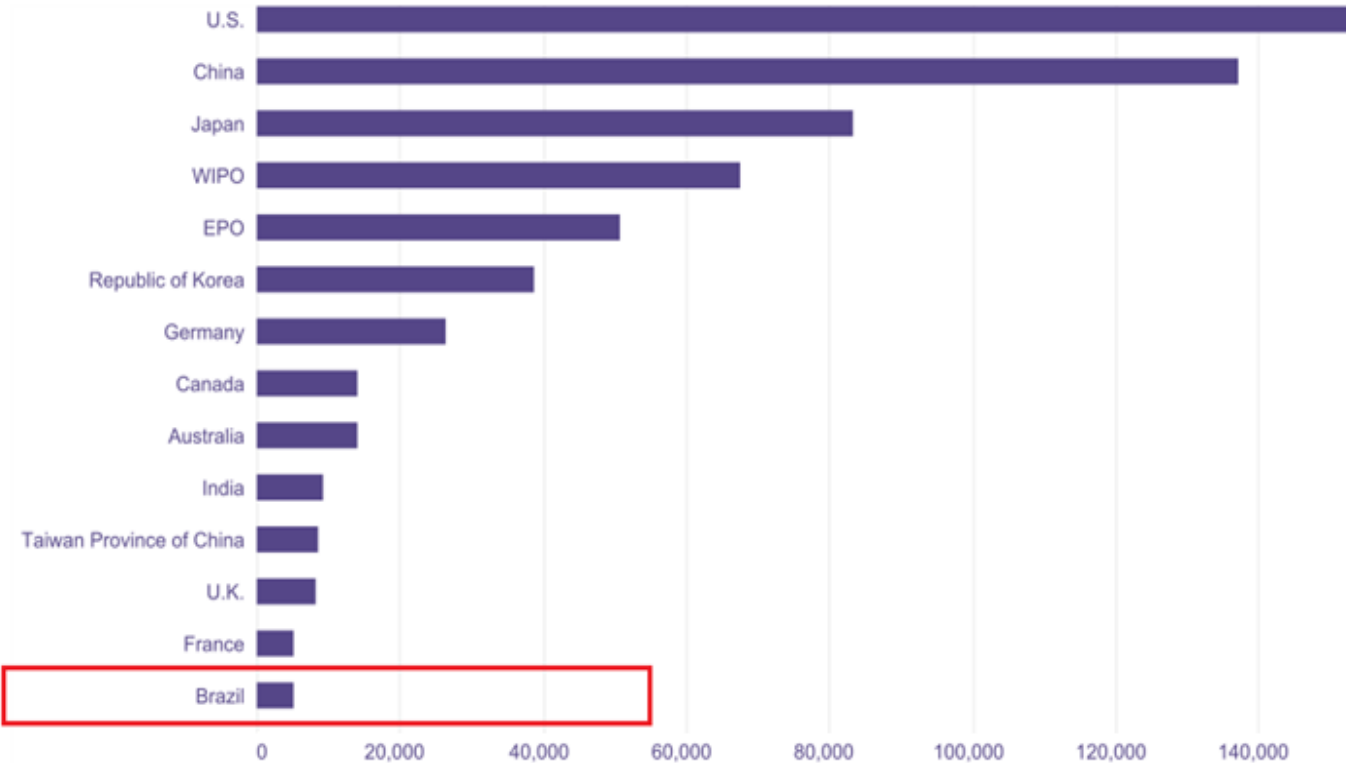
- ◆ current concern of Patent Offices in the substantive technical examination, to provide better guidance, transparency and harmonization in decisions;

AI-generated inventions: Inventions where the technical solution is generated by AI– AI as the inventor

- ◆ Human intervention does not exist, or is minimal
- ◆ Questions about the role of the inventor;

Figure 5.2. Overall number of patent applications by patent office

The greatest number of patent applications are filed in the patent offices of U.S. and China, followed by Japan, while WIPO and the EPO are also often used



Source: (Wipo 2019)
WIPO Technology
Trends - Artificial
Intelligence

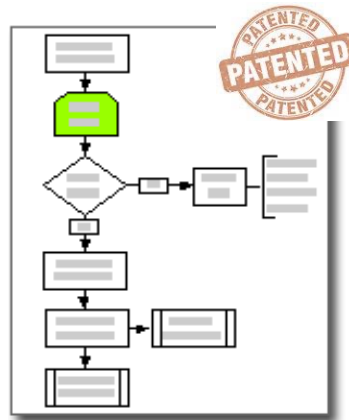
- ◆ Patent Offices are not concerned in evaluating if the invention was actually developed by a human or computer – provided that a human inventor is listed, the application is examined as other cases;
- ◆ Applications that relates to AI are being analyzed as Computer Implemented Inventions (CII);
- ◆ The technical examination does not consider the participation of inventors or the expertise of inventors;

- ◆ Many IP Offices, such as the IP5, have provided updated guidelines to address the patentability of AI assisted inventions
- ◆ The guidelines mainly address the patentability requisites of:
 - ◆ Eligibility (non-statutory subject matter)
 - ◆ Sufficiency of disclosure / enablement
 - ◆ Inventive step / non-obviousness

- ◆ Patent Offices or National Laws usually establish what is non-statutory subject matter - mathematical ideas and computer program *per se* are not patentable
- ◆ Patent Offices have been treating AI invention as computer implemented inventions (CII) - eligible when they are technical in nature and non-abstract

Technical solution
to a technical
problem

Invention
implemented in a
computer
program



Authorial
expression of
the technical
solution

Computer
program itself

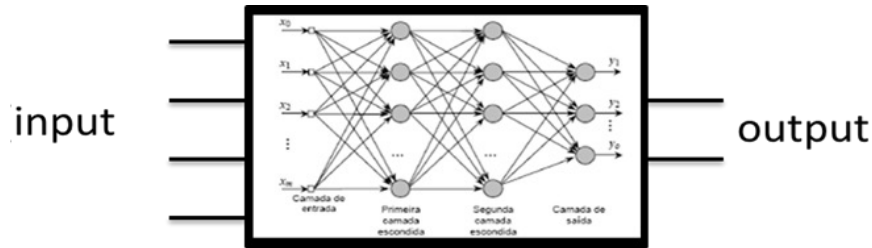


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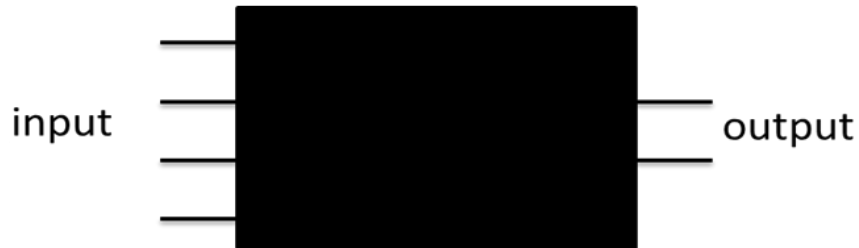
/**
 * Simple HelloButton() method.
 * @version 1.0
 * @author john doe <doe.j@exam,-----
 */
HelloButton()
{
    JButton hello = new JButton( "Hello, wor
    hello.addActionListener( new HelloBtnList

    // use the JFrame type until support for t
    // new component is finished
    JFrame frame = new JFrame( "Hello Button"
    Container pane = frame.getContentPane();
    pane.add( hello );
    frame.pack();
    frame.show();
}
    
```

- Applicant must provide clear and precise description for a person skilled in the art to carry out the invention;
- Provide information regarding training, including the description of the data, and how the AI system is trained



Avoid “black-box” applications



- Important to provide at least one example of training data
- The source of the data itself, although desirable, is not mandatory

- ◆ The invention cannot be obvious for a person skilled in the art
- ◆ Be careful when the invention merely implement AI in a way that the advantages of AI are well known, for example:
 - ◆ replacing a deterministic (non-AI) method by an AI predictive model;
 - ◆ using a different Machine Learning method or a different dataset;
 - ◆ Modifying parameters and input data
 - ◆ Adding pre-processing of parameters;



Source: <https://www.freepik.es/> (AI-generated)

- ◆ The benefits of AI are considered within reach of all technical fields

	United States	EPO	China	Brazil
Eligibility	<p>“laws of nature, natural phenomena and abstract ideas” – not eligible</p> <p>CII eligible if the application targets an abstract idea with additional elements that contribute to a practical application → Alice-Mayo Test</p>	<p>AI and machine learning are <i>per se</i> abstract in nature, regardless of whether they can be “trained”</p> <p>The eligibility hurdle is easily overcome by citing the use of a computer in the claims</p>	<p>Three-element criterion:</p> <ul style="list-style-type: none"> • technical problem, • technical means and • technical effect 	<p>AI techniques when applied to the solution of technical problems can be considered an invention.</p> <p>IA treated as computer-implemented inventions (CII).</p> <p>No further examples are provided.</p>
Sufficiency of disclosure	<p>describe (i) the technical problem, (ii) the AI suitable to address the problem, (iii) the algorithms used, and (iv) the necessary training data</p> <p>teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation.</p>	<p>Provide Information regarding training, including the description of the data, parameters that make up the data</p>	<p>For AI-related inventions, the initial input data must be clear and the algorithm or model must also be determined</p>	<p>No specific provision regarding AI</p> <p>Sufficient information for the person skilled in the art:</p> <ul style="list-style-type: none"> (i) put the invention into practice without undue experimentation; (ii) understand the contribution of the invention to the state of the art

	United States	EPO	China	Brazil
Inventive Step	<p>All features (technical and algorithmic) are considered</p> <p>Using ML in a specific use case would potentially be considered an obvious practical application of known ML</p> <p>Example: training a NN for facial recognition. It is known that ML is particularly useful in any pattern recognition – likely to be considered obvious</p>	<p>Non-technical features were not considered when asserting inventive step.</p> <p><u>Rule softened in 2022:</u> AI features must be explicitly linked to the technical effect to be considered for inventive step.</p> <p>The algorithmic features must be related to technical application (e.g., speech processing) or technical implementation (e.g., real time voice translation for call).</p>	<p>All features (technical and algorithmic) are considered.</p> <p>if an algorithmic characteristic <u>leads to an improvement in the computer's internal performance</u>, such as reducing data transfer, the algorithmic features will be considered when evaluating inventive step</p>	<p>Non-technical features are not considered when asserting inventive step.</p> <p>This person skilled in the art would be motivated to search the literature for patent documents or articles about AI models to solve a problem in the technical field in question.</p>

What about AI-generated inventions?

- ◆ Computer and AI have been participating in the innovation and patent system for many years¹;
- ◆ Dr. Thaler’s “Creativity Machine” has created an invention that was filed listing Dr. Thaler as the inventor. Such patent was first filed on January 26, 1996, and granted by the USPTO on December 22, 1998²
- ◆ Applicants are probably not listing the AI system as inventors in view of uncertainty regarding patentability of AI generated invention;
- ◆ Is this fair to human inventors that actually worked for years to develop an invention?

¹Thaler, Creativity Machine® Paradigm, supra note 29, at 451. Table 1 contains a list of Creativity Machine accomplishments. Id

²Abbott, R., & Syed, T. (2016). I think, therefore I invent: Creative computers and the future of patent law. Boston College Law Review, 57(4), 1075-1156.

The DABUS case: challenging the patent system



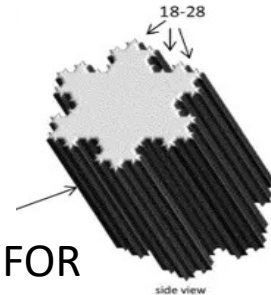
The DABUS case has provoked discussion of AI declared as an inventor in patent applications

WO 2020/079499

Filing date: September 17, 2019

Title: FOOD CONTAINER AND DEVICES AND METHODS FOR ATTRACTING ENHANCED ATTENTION

Inventor: DABUS the invention was autonomously generated by an artificial intelligence



DABUS case family status

	Countries	Notes
Patent granted	South Africa	South Africa operates a depository system: the patent office only checks for basic formal requirements.
Denied	United States, Australia, Brazil, Canada, Saudi Arabia, Taiwan, United Kingdom, Europe, Germany, Israel, Republic of Korea, Japan, New Zealand, China	<u>Inventions were denied based on the fact that “the inventor must be a natural person”</u>
Still pending	India, Singapore, Switzerland	

- ◆ Suppose you work in the shoe business;
- ◆ This is Lina, a Chow Chow dog who has a habit of chewing shoes;
- ◆ Your leave your sneakers within reach of Lina, she removes the insole from the sneakers and enjoys chewing them.
- ◆ When using the insole throughout the day, even though it was pierced by Lina's teeth, you notice that at the end of the day the moisture in your feet has reduced.
- ◆ With the holes in the insole, the feet sweat less, as ventilation increases.



- ◆ You try different hole sizes so that the insole remains comfortable and send it for mass production;



Would it be legitimate for you to appear as an inventor?
If so, what makes you the inventor and not Lina?

SCENARIO A

- ◆ **Person A** and **Person B** are both engineers
- ◆ **Person A** would like to develop a new smartphone camera application to provide better quality at dark
- ◆ **Person A** then tells this desire to **Person B** and then provide **Person B** with public documents explaining about existing software that aims for better night photo quality
- ◆ Through his/her Search, **Person B** manages to develop a new and inventive app to provide better quality at dark
- ◆ Would **Person A** qualify as inventor for this invention?
- ◆ In most jurisdictions, **Person A** would not qualify as an inventor of the camera app by merely having asked **Person B** to develop an invention. **Person B** should be the sole inventor



Source: Ting.blog

NOW IMAGINE SCENARIO B

- ◆ **Person A** is an engineer and has access to a **Generative AI** configured to develop new technical solutions (like Dr. Thaler's creativity machine)
- ◆ **Person A** prompts this command to the **Generative AI**, which is trained with public documents explaining about existing software that aims for better night photo quality
- ◆ Through its generative capabilities, the **Generative AI** manages to develop a new and inventive app to provide better quality at dark
- ◆ Would **Person A** qualify as inventor for this invention?
- ◆ If **Person A** is not the inventor, who is the inventor? In this case, should the invention not be patentable because there is no human inventor?



Source: Ting.blog

- ◆ AI-Assisted inventions should be treated differently than AI-Generated inventions
 - ◆ **AI-Assisted inventions** – thousands being filed and examined right now – a practical discussion for the present
 - ◆ **AI-Generated inventions** – a discussion for the future: should states change their laws to allow AI inventors? What about harmonization?
- ◆ AI-Assisted inventions are treated as CII with some additional challenges during examination, such as sufficiency of disclosure;
- ◆ Although the DABUS case drawn a lot of attention, being refused by most of patent Offices, AI systems have been participating in inventive processes for many years;

- ◆ Owners of AI system have probably been omitting AI's participation from the list of inventors, in view of uncertainty regarding patentability of AI-generated application, now increased after DABUS case;
- ◆ The patent system is designed to promote innovation, by granting inventors exclusive rights to their inventions for a limited period;
- ◆ Although AI would not be motivated to invent by the prospect of a patent, patents for AI-generated inventions would motivate computer scientists to develop new creative machines;
- ◆ Permitting computer inventors and patents on computational inventions might also promote disclosure and commercialization.

- ◆ Remember: we are talking about AI as an inventor, not as the owner of a patent application! Computers cannot own property, and it is safe to assume that self-conscious AI and “computer personhood” are not happening in a near future

Additional questions

- ◆ In case of Patent Office allowing AI to figure as the inventor, who should be Owner of the patent?
- ◆ Should the substantive technical examination criterion treat this invention differently?
- ◆ What about obviousness for the person skilled in the art?

THANK YOU!



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