

# AI and the Patentability Requirements

What can be patented and how?

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# What is AI?

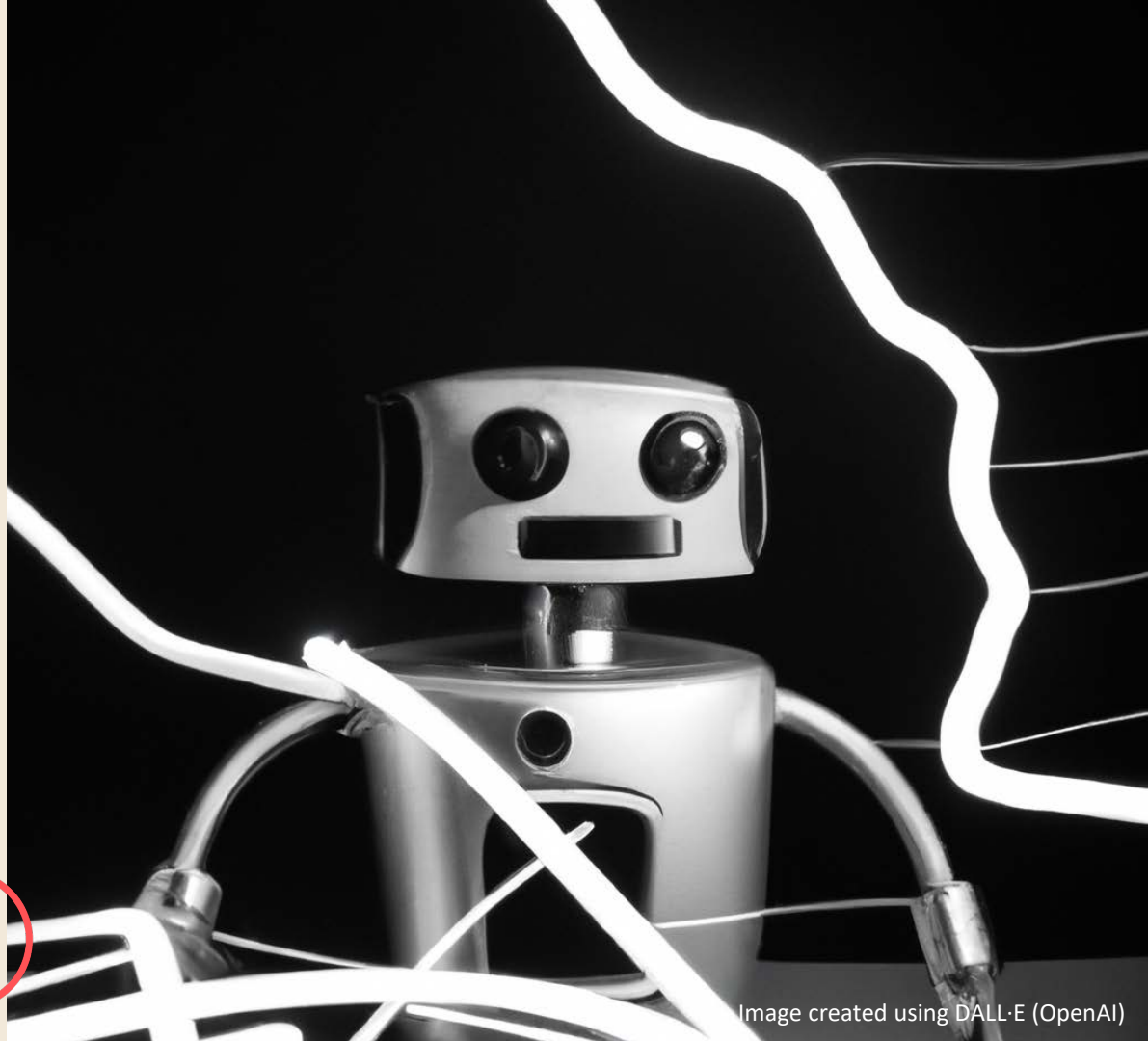


Image created using DALL-E (OpenAI)

Default (GPT-3.5)

BE

please explain AI to someone without computing knowledge in less than 50 words



AI, or Artificial Intelligence, is technology that enables machines to imitate human intelligence. It allows computers to learn, reason, and solve problems, making them capable of tasks like understanding speech, recognizing patterns, and making decisions. AI is used in various fields to enhance automation and problem-solving without human intervention.



Regenerate



## Common patentability pitfalls

1. Excluded subject matter (software)  
Art. 52(2) EPC
2. Inventive step (technical effect)  
Art. 56 EPC
3. Sufficiency (undue burden)  
Art. 83 EPC
4. Clarity (broad claims)  
Art. 84 EPC

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# 3 types of AI inventions



Image created using DALL-E (OpenAI)

please invent me a new solution for the problem of winter tires damaging roads when there isn't snow



Certainly! One innovative solution to address the problem of winter tires damaging roads when there isn't snow could be the development of **"Adaptive Traction Control Systems."**



**Adaptive Traction Control Systems** would be equipped with smart sensors and artificial intelligence algorithms. These sensors would continuously monitor road conditions, temperature, and other relevant factors. When the system detects that there is no snow or ice on the road, it would automatically adjust the tire traction to a softer and more road-friendly mode.

In this softer mode, the tires would have a different tread pattern or a material composition designed specifically for regular road conditions. This adaptive technology could be integrated into the tires themselves or implemented as an add-on device that can be easily retrofitted onto existing winter tires.

The benefits of this solution include:

1. **Reduced Road Damage:** By adjusting the tire traction based on road conditions, the wear and tear on roads during non-snowy periods would be significantly reduced, leading to lower maintenance costs.
2. **Improved Fuel Efficiency:** Softer tires with optimized traction would improve fuel efficiency as they would provide better grip without the excessive rolling resistance typically associated with winter tires on dry roads.
3. **Enhanced Safety:** Tires with adaptive traction control could improve overall vehicle stability and handling, enhancing safety even in non-

## 1 AI-generated, 2 AI-aided, & 3 AI-based inventions

1. AI-generated inventions | Inventions that have been solely generated (or "invented") by an AI algorithm.  
*E.g. ChatGPT, please invent me a new solution for the problem of "X"*
2. AI-aided inventions | Inventions that have been made by a person(s) with the aid of AI enabled systems or technology.  
*E.g. AI-aided drug discovery*
3. AI-based inventions | Inventions that are directed to new or improved AI algorithms.  
*E.g. A new training method to increase efficiency and accuracy.*

# 1 AI-generated inventions

- Moral dilemma:
  - Who “should” be the inventor?
  - Who “owns” the IP?
- Candidates:

The AI system; The legal entity who asked the question; The owner of the AI system; The creator of the AI system; The user of the AI system; ....
- Germany | AI-generated inventions are patentable, but a natural person must be named as the inventor
- Legal questions for legislators
- Probably best to just focus on the output...





# Who is the inventor?

## DABUS

- Thaler invented an AI machine known as 'Device for Autonomous Bootstrapping of Unified Sentience' (DABUS) to generate inventions
- The EPC requires the inventor to be a natural person and an AI machine cannot assign patent rights to the applicant
- Complex AI → New legal frameworks
- Best practice (for now) is to assume the AI system is limited





## 2 AI-aided inventions

- The AI system is a tool
- Operators and machine-learning engineers as inventors
- T 1510/10 | **“No inventive step can derive just from the use of machine learning”**
- Consider splitting into two:
  1. The AI system
  2. Resulting output
- Careful | sufficiency of disclosure

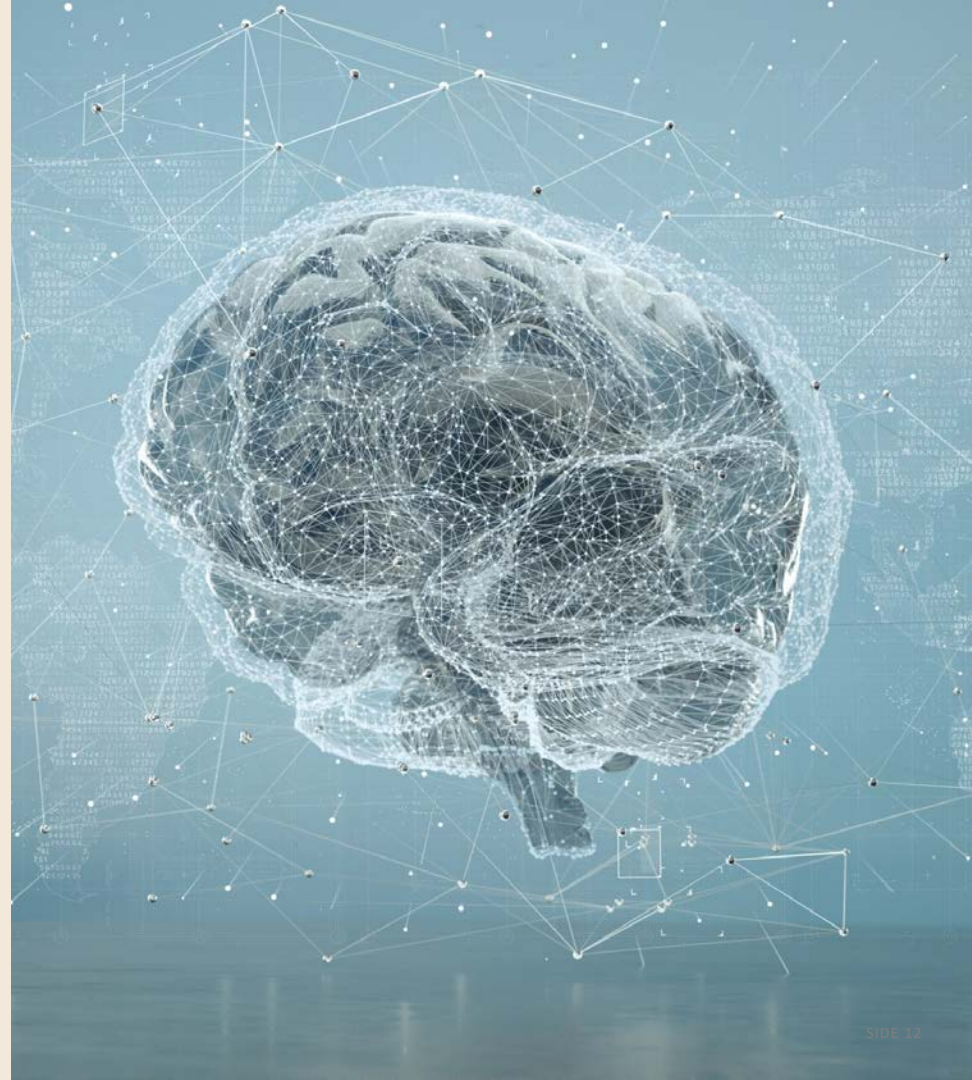


## Example | AI-aided drug discovery

- List the operator as an inventor
  - WO2022129915A1 (BenevolentAI) | PYRAZOLE DERIVATIVES AS C-ABL INHIBITORS
  - An AI-specialist is included among the inventors
  - No mention of AI
- Potentially patent the AI system in a separate application
  - WO2023089304A1 | METHOD AND SYSTEM FOR IDENTIFYING BIOLOGICAL ENTITIES FOR DRUG DISCOVERY
- Prior art disclosure v. sufficiency

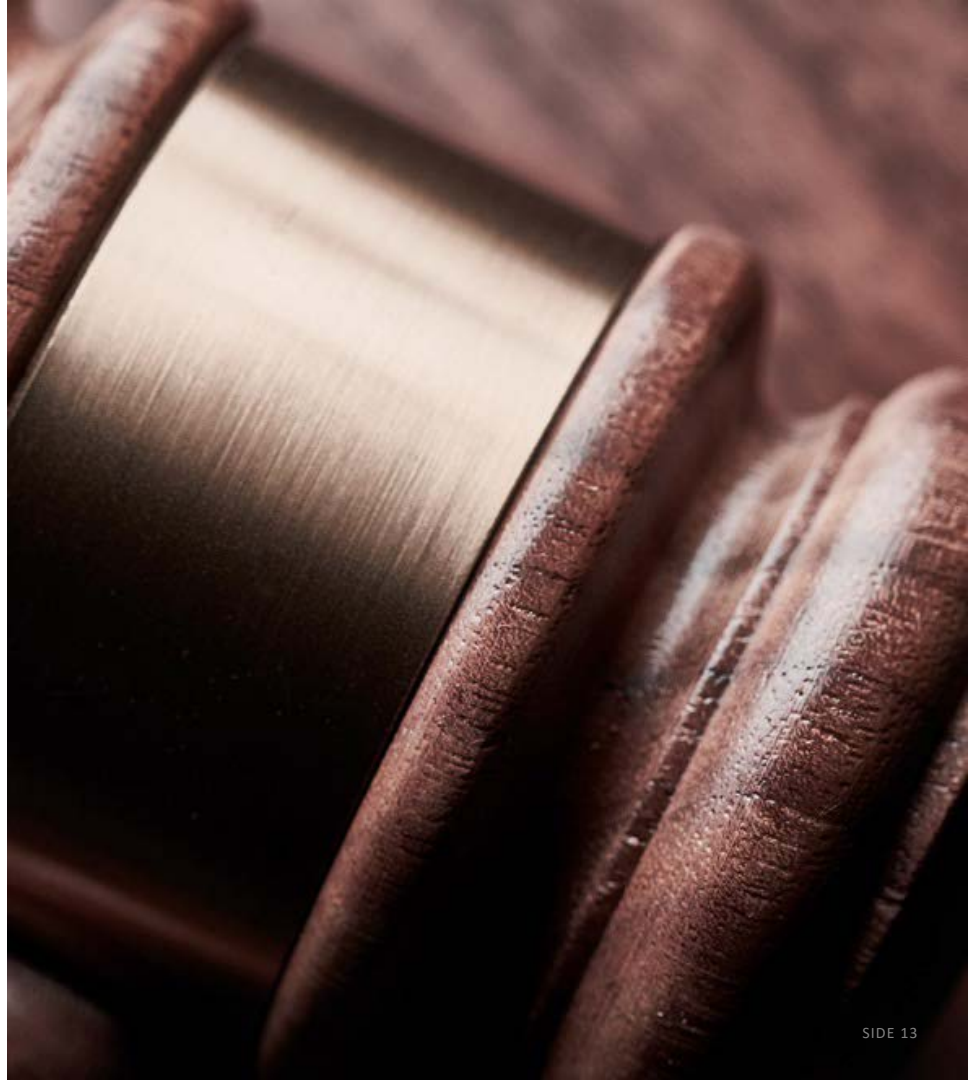
### 3 AI-based inventions

- Computer implemented invention v. Art. 52(2) EPC | Mathematics, mental acts, and programs for computers
- T 27/97 | a technical effect must be linked to the algorithm
  - If in doubt, it's out (T 953/04, T258/97)
- G 1/19 | “further” technical effect → *only* technical effects
  - (T 1784/06 | “Valuable” algorithm but non-technical purpose)
- Make sure the novel feature contributes to a (further) technical effect
  - Improved accuracy not enough (T 755/18)



## Example cases

- ✓ EP3525388B1 (Apple Inc.)  
**PRIVATIZED** MACHINE LEARNING USING  
GENERATIVE ADVERSARIAL NETWORKS
- ✗ EP3776386A1 (Diveplane Corp.)  
COMPUTER BASED REASONING AND  
ARTIFICIAL INTELLIGENCE SYSTEM
  - Novel but “generic” → non-technical
  - BUT granted by USPTO
- (EP3867818)  
“Without a concrete real-world application  
being specified, the claimed invention  
cannot produce a technical effect other  
than causing a generic computer to  
compute arbitrary synthetic data”



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# Patentability Requirements

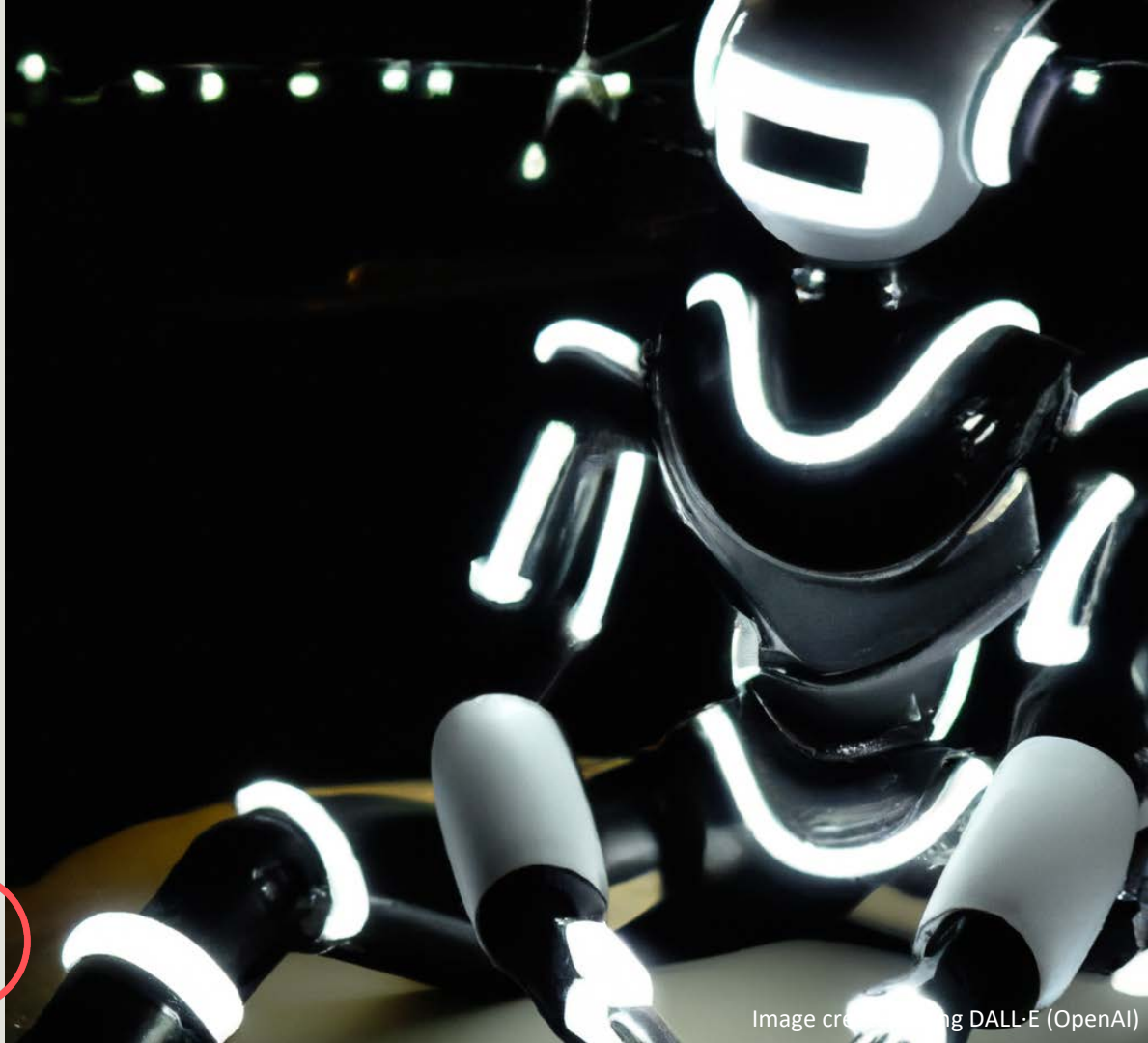
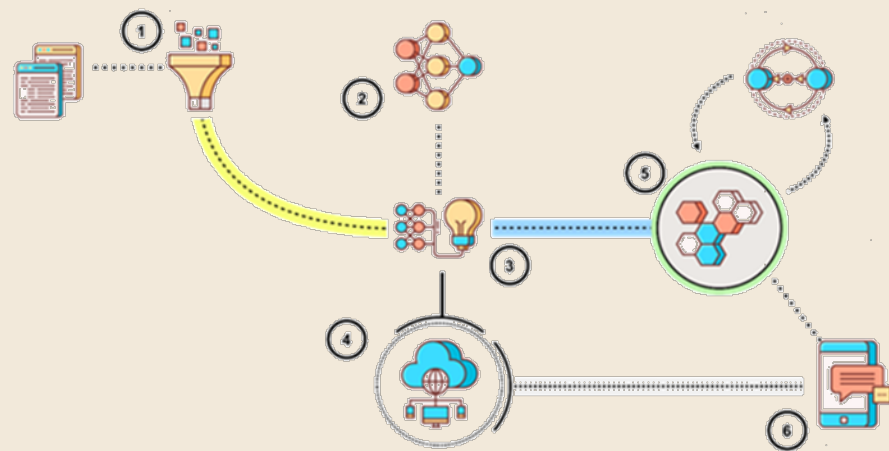


Image created using DALL-E (OpenAI)

# Patentability Requirements | Sufficiency

- Include a full data storyline:
  - Processing
  - Training
  - Algorithm
  - Application
- Alternatives for support | Can different AI algorithms achieve the same result?



H. Strang et al.: "Machine-learning patents at the EPO: how to overcome the pitfalls" IAM, 16 March 2022



## Patentability Requirements | Inventive Step

- Overcoming a non-technical objection
  - Energy efficiency
  - Resource efficiency
  - Improved security
  - ...
- Multiple potential uses
  - Specific technical effects
  - Divisionals



# Does patenting offer the best protection?

- Detecting infringement
  - Enforcement issues
  - Licensing issues
- Modifications
  - How easy is it to work around the claimed innovation?
- Third-party agreements
  - Who owns the IP?
  - Host v. user



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# Thank you for listening!

## Any questions?

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# Creating value through IP™

