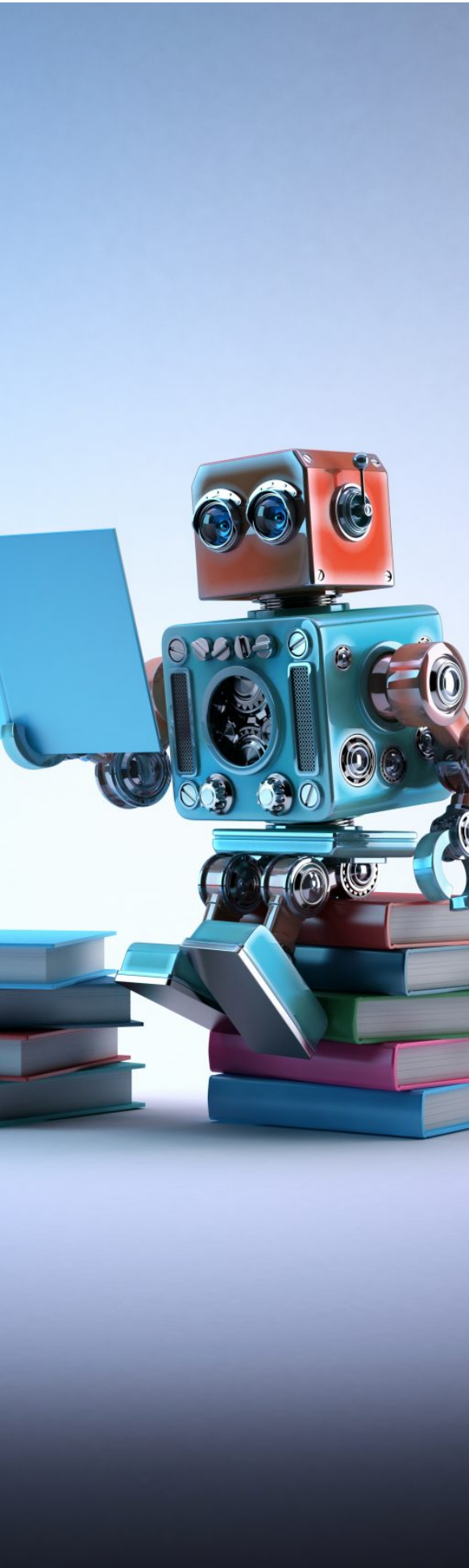


# CAN ARTIFICIAL INTELLIGENCE BE INVENTORS LEGALLY?



The report talks about a very hot topic DABUS - covering its details, associated issue, current status of applications filed under the name DABUS and its importance. Through this report, we are answering most of the queries that are coming up on this subject. Bayslope team has performed a secondary level research to prepare the report. The report contains no legal opinion and only seeks to provide information.



## WHAT IS DABUS?

It is an AI (Artificial Intelligence) system or a machine that simulates human brainstorming and creates new inventions.

## WHO IS THE CREATOR OF DABUS?

DABUS is created by Stephen Thaler who is the CEO of Imagination Engines. He is a pioneer in the field of AI and programming.

## WHY THERE IS SO MUCH BUZZ ABOUT DABUS APPLICATIONS?

The applications filed by Stephen Thaler challenge the orthodox practice where only humans can be named as inventors in a patent application.

## WHAT IS THE FULL FORM OF DABUS?

The full form is - "device for the autonomous bootstrapping of unified sentence".

## WHAT'S THE DABUS ISSUE?

The DABUS issue is related to inventorship of Inventions made/created using AI in context of the patent law.



## WHO FILED THESE APPLICATIONS?

Ryan Abbott, a Professor of Law and Health Sciences at University of Surrey filed the application. Abbott also led a group of lawyers/attorneys on the behalf of DABUS and Stephen Thaler.

## WHAT IS THE ISSUE WITH DABUS APPLICATIONS?

The patent applications name DABUS, (i.e., AI machine) as an inventor as opposed to traditional practice of mentioning humans as an inventor.

## HOW MANY APPLICATIONS NAMING DABUS AS AN INVENTOR, ARE FILED?

In total, 2 applications are filed at multiple patent offices along with 1 PCT patent application.

## WHAT ARE THE INVENTIONS CREATED BY DABUS?

DABUS created 2 inventions without the intervention of humans including - one relates to an emergency warning light and the second is on a food container that improves grip and heat transfer.

## WHERE ARE THE APPLICATIONS NAMING DABUS FILED?

The patent applications naming DABUS are filed in multiple patent offices around the world including USPTO, EPO, UKIPO, South Africa, Australia, Germany and many others. Along with this, an International PCT application combining the subject matter of both applications is filed.

## WHAT'S THE STATUS OF THESE APPLICATIONS?

DABUS patent applications are currently pending in multiple patent offices including Canada, India, the Republic of Korea, China, Taiwan, New Zealand, Israel, Brazil, Switzerland, and Saudi Arabia. However, the applications are granted by South Africa and Australian offices. The applications are in the appeals process in the US, UK, Germany, Australia, and the European Patent Office.

## WHICH IS THE FIRST INTELLECTUAL PROPERTY OFFICE TO CONSIDER AI AS INVENTORS ON PATENTS?

South Africa has become the first patent office in the world to issue patent that names artificial intelligence as the inventor .

## WHAT IS THE STAND OF EPO, i.e., EUROPEAN PATENT SYSTEM?

The EPO refused 2 inventions where DABUS is named as the inventor.

## WHAT IS THE STAND OF USPTO, i.e., UNITED STATES OF PATENT & TRADEMARK OFFICE?

The USPTO rejected the application stating AI cannot be an inventor and only natural persons can be named as the inventors.



## WHAT'S THE REASON FOR REJECTION BY EPO AND USPTO?

According to the patent office laws, the applications don't meet the legal requirement. The applications name DABUS as an inventor and the inventor can be any natural person and the DABUS is a machine NOT a natural person. The simple reason is that as per the legal requirements for patent filing, the inventor needs to be a natural person or a human.

## DABUS IS SIMILAR TO OTHER AI S?

No, although DABUS is an AI system but is totally different from AI such as Siri and others. The DABUS is much more independent and has the capability of complex functioning such as creating inventions.

## ANY PATENT OFFICE(S) GRANTED THESE APPLICATIONS?

Yes, South Africa Intellectual property office is the first office who granted these applications naming DABUS as an inventor. Few days later, Australian court too decided to grant applications in Australia.

## WHEN THE APPLICATIONS ARE FILED?

In 2018-2019, 2 applications were filed in parallel with the multiple patent offices including USPTO, EPO and UKIPO.

## ANY EXAMPLES SIMILAR TO DABUS IN THE PAST?

Yes, earlier this year, AI semi-supervised question answering machine received a patent for its algorithms. But the Australian company, Flamingo AI limited, now owns the patent rights.

# WHY THALER WANTS AI TO BE RECOGNIZED AS INVENTOR?



Stephens Thaler, the creator of DABUS says that "the ideas were developed by the DABUS without any intervention from the humans so the DABUS should be recognized as an inventor".

## WHAT IS DABUS DECISION BY EPO AND UKIPO?

The DABUS decisions in the EPO and the UK are now under appeal. In the EPO, appeals were submitted in May 2020 and are pending currently. The decision of the UKIPO was reviewed in England and Wales High Court last year, on July 15, 2020 and a decision is awaited.

## ANY BENEFITS OF DABUS?

Yes, it will encourage everyone (individuals and companies) around the world to make, develop and use AI to generate valuable innovations for society.

## WHAT IS GENERAL SAYING ABOUT THE GRANT BY SOUTH AFRICA?

Although South Africa has granted the patent but experts are stating multiple reasons. For example, some say the reason for the grant may be the country does not have a substantive patent examination system, while others say the South Africa's patent law does not define the Inventor. Some are saying grant is a mistake while others consider it as an oversight by the office. So overall, the significance of the grant may not be seen that great.

## WHY SOME EXPERTS ARE OPPOSING THE DABUS INVENTIONS?

The patent experts are rejecting the idea of naming DABUS as inventor because of multiple reasons. One is that their respective patent laws consider only human inventors Not machines/AI. Second inventions require the element of “mental conception” and this is something which only a human mind is capable of. Thirdly, inventorship comes with certain rights, which AI is not legally capable of possessing. Another important point is, they feel there is a need to monitor the responsible use of AI.

## ANY AI RELATED PRIOR WORK DONE BY THALER?

Prior to DABUS, Thaler built an AI relating to the cross-bristle toothbrush design. He filed a patent for the cross-bristle design, and it was granted. But, Thaler listed himself as the inventor at that time instead of AI.

## ANY PAST FAILURE LIKE DABUS?



Yes, the technology company Siemens in 2019 couldn't file a patent on a new car suspension system as it was developed by AI. This is just one example, but the current system has prevented numerous patents from being registered because the inventions were created autonomously and independently by AI.

## WHAT ARE ASSOCIATED PUBLICATION NUMBERS PENDING AT USPTO?

The DABUS USPTO application numbers are: Application No. 16,524,350 named as Neural Flame, and Application No. 16/524,532, named as Fractal Container. The applications are not yet published.

# WHAT ARE ASSOCIATED PUBLICATION NUMBERS PENDING AT EPO?

The DABUS EPO publication numbers are EP18275163 and EP18275174. The first patent '163 relates to food container and the '174 relates to emergency warning system, respectively.

(19)  (11)  **EP 3 564 144 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication: **06.11.2019 Bulletin 2019/45** (51) Int. Cl.: **B65D 6/02 (2006.01) B65D 8/00 (2006.01) B65D 6/00 (2006.01) B65D 13/02 (2006.01) B65D 21/02 (2006.01) B65D 1/02 (2006.01)**

(21) Application number: **18275163.6**

(22) Date of filing: **17.10.2018**

(84) Designated Contracting States: **AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LJ LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**  
 Designated Extension States: **BA ME**  
 Designated Validation States: **KH MA MD TN**

(72) Inventor: **The designation of the inventor has not yet been filed**

(74) Representative: **Williams Powell  
11 Staple Inn  
London WC1V 7QH (GB)**

Remarks:  
 •The designation of inventor does not meet the requirements laid down in Article 81 and Rule 19 EPC.  
 •Amended claims in accordance with Rule 137(2) EPC.

(71) Applicant: **Thaler, Stephen L.  
St. Charles MO 63303 (US)**

(54) **FOOD CONTAINER**

(57) A container (10) for use, for example, for beverages, has a wall (12) with an external surface (14) and an internal wall (16) of substantially uniform thickness. The wall (12) has a fractal profile which provides a series of fractal elements (18-28) on the interior and exterior surfaces (14-16), forming pits (40) and bulges (42) in the profile of the wall and in which a pit (40) as seen from one of the exterior or interior surfaces (12, 14) forms a bulge (42) on the other of the exterior or interior surfaces (12, 14). The profile enables multiple containers to be coupled together by inter-engagement of pits and bulges on corresponding ones of the containers. The profile also improves grip, as well as heat transfer into and out of the container.

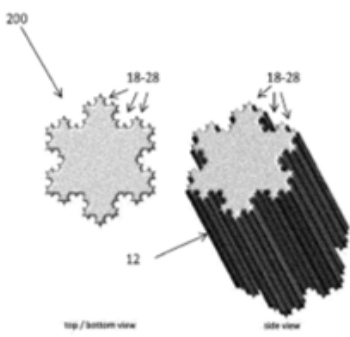




Fig. 6

(19)  (11)  **EP 3 563 896 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication: **06.11.2019 Bulletin 2019/45** (51) Int. Cl.: **A61M 21/00 (2006.01) A61M 16/00 (2006.01)**

(21) Application number: **18275174.3**

(22) Date of filing: **07.11.2018**

(84) Designated Contracting States: **AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LJ LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**  
 Designated Extension States: **BA ME**  
 Designated Validation States: **KH MA MD TN**

(72) Inventor: **The designation of the inventor has not yet been filed**

(74) Representative: **Williams Powell  
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Remarks:  
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(71) Applicant: **Thaler, Stephen L.  
St. Charles MO 63303 (US)**

(54) **DEVICES AND METHODS FOR ATTRACTING ENHANCED ATTENTION**

(57) The present invention discloses devices and methods for attracting enhanced attention. Devices include: an input signal of a lacunar pulse train having characteristics of a pulse frequency of approximately four Hertz and a pulse-train fractal dimension of approximately one-half; and at least one controllable light source configured to be pulsatingly operated by the input signal; wherein a neural flame emitted from at least one controllable light source as a result of the lacunar pulse train is adapted to serve as a uniquely-identifiable signal beacon over potentially-competing attention sources by selectively triggering human or artificial anomaly-detection filters, thereby attracting enhanced attention.

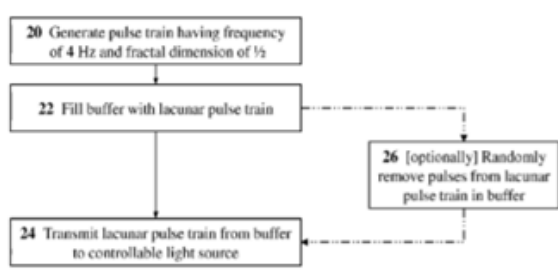


Figure 2



## HOW TO HANDLE DABUS OR SIMILAR CASES IN FUTURE?

Commentators suggesting patent offices should develop common guidelines to govern AI generally and any inventions they produce/create without the intervention of any human. Maybe a new regulation is required to consider AI as inventors from a different perspective but keeping public health and safety in mind.

## ANY SIMILAR AI SYSTEMS?

Yes, Chematica, is a similar AI system in the domain of life sciences. The AI system plans chemical syntheses and finds new patentable pathways to target molecules. Bartosz Grzybowski is the creator of Chematica who is a professor at UNIST/IBS, South Korea & Polish Academy of Sciences.

## WHAT BARTOSZ GRZYBOWSKI SAYS?

The professor says Chematica is a 'facilitator' of a discovery but not an inventor. Despite Chematica developing the inventions autonomously, the reaction rules and algorithms are coded by humans and humans are required to validate the results in the laboratory. According to him, the output can be patentable only with human/manual validations. 'This is because on paper – in silico – a route might look perfectly legitimate but then, when one tries to execute it in the lab, some unexpected complications emerge.' But he admits 'if an AI robot validated the results then the route should be patentable'.

## ANY OTHER AI TOOL GENERATING INVENTIONS?

Yes, AI model known as ElemNet. The tool automatically predicts the stability of new material candidates using only their elemental composition, without domain knowledge or human input. Any new material candidates discovered by ElemNet that then can be validated/synthesised in a chemistry lab for real-world applications. The tool is developed by Dipendra Jha, a research scientist at Northwestern University, US, and lead machine learning engineer at Target Corporation.

## ANY PRACTICAL AND USEFUL EXAMPLE WHERE AI IS CREATING INVENTIONS?

Undoubtedly Yes. The AI is already creating inventions for the life science community and its presence is well recognized and growing. As an example, AI is currently used to predict biological targets of drug molecules, identify the right candidates for drug design, decode genetic material of viruses for developing vaccines development, determine 3D structures of proteins, and many other potential therapeutic applications.

# WHAT IS THE HISTORY WITH AUSTRALIAN PATENT OFFICE?

Initially, the Australian Patent Office refused to proceed with the application. Thaler later appealed to the Federal Court and succeeded. The court officially recognized Artificial Intelligence as Inventors on July 30, 2021. The decision came just few days after the Intellectual Property Commission of South Africa granted a patent recognizing DABUS as an inventor.

# WHY AUSTRALIAN COURT AGREED?

In its landmark decision issued on July 30, 2021, an Australian court officially declared that an AI system called DABUS can be legally recognized as an inventor on a patent application. It came just days after the Intellectual Property Commission of South Africa granted a patent recognizing DABUS as an inventor.

The Australian court stated that the ordinary meaning of “inventor” does not exclude non-humans. They also mentioned that in patent law, there is no requirement for a human inventor. This is the first court decision in the world permitting machines/non-humans to be named as inventors. In its decision, the court describes that AI has many benefits like in pharmaceutical research, starting from identifying molecular targets to development of vaccines. In view of these contributions, the court mentioned that no narrow view should be taken to the term “inventor” and also suggested that the concept of “inventor” should be flexible and capable of evolution.

# WHAT IS THE STAND OF EPO?

The EPO rejected the two patent applications as filed. Thaler then appealed. The EPO Board of Appeal shared its preliminary view on June 21, 2021 but the appeal hearing is scheduled for later this year.

# WHAT HAPPENED WITH DABUS APPLICATIONS AT UK IPO?

The UK IPO rejected the application. Thaler appealed to the High Court where his appeal was dismissed stating that “the provisions of the Patents Act 1977 are extremely clear” that an inventor must be a person. Thaler then appealed to the Court of Appeal and a decision is expected later this year.

# WHAT IS THE STAND OF USPTO?

The USPTO also refused to allow the application and Thaler appealed to the district court. On September 2, the court ruled in favor of the USPTO. As per the statements, the court decision will be appealed to the Court of Appeals for the Federal Circuit.

# WHY SA GRANTED THE DABUS APPLICATIONS?

One probable reason is that South Africa government wants to increase innovation to solve the country's socioeconomic issues. And another reason could be it got granted because of the PCT application.

# ANY IMPACT OF AUSTRALIAN PATENT OFFICE DECISION?

Yes, as compared to the judgment from South Africa patent office, the decision by Australian court has more significance and importance in recognition of AI systems as inventors. The relative strength of the Federal Court of Australia, and its relative global weight in context of acceptance of patent decisions, caused the patent community across the globe to take notice. In addition, the decision by Australian court is putting pressure on other patent offices to address the unresolved issue.

# ANY OFFICIAL STATEMENT BY ABBOTT?

Abbott says - "We're moving into a new paradigm where not only do people invent, people build artificial intelligence that can invent."

# WHAT ARE THE PRACTICAL USES OF AI?

AI technology has proven its significance during the Covid times. AI helped in the development of new drugs, vaccines, and diagnostic methods. In addition AI helped in tracking and forecasting the outbreaks, managing drones and robots to deliver medical supplies and so on.

# WHAT IS THE PATH AHEAD?

AI is playing its role in research and innovation and is improving exponentially. For the short to mid-term innovations, AI may become a significant part of research and development activity. One proven example of the short term - is the use of AI in Covid times. It has been used for various purposes including identifying right molecules, developing drugs and vaccines, identifying and tracking outbreaks and so on. So it is important to develop policies or frameworks to deal with AI-generated inventions or inventions developed partially by AI. The policies should answer/cover - who should be listed as an inventor and how the rights of inventorship will be exercised. This may be achieved by making some changes in existing patent laws or by developing a separate framework to evaluate AI generated inventions. In simple words, we need to develop an AI patenting policy more aligned with modern patenting standards.

# HAVE ANY QUERY?

We hope you find the information provided in the report relevant and useful. If you have any queries, Get in touch with our experts [contact@bayslope.com](mailto:contact@bayslope.com).

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