IN THE U.S. COURT OF APPEALS FOR THE FEDERAL CIRCUIT

Mitchell Apper, *pro se*
Sukkat Shalom 1/15
Jerusalem, 9430501, Israel
mapper@pobox.com
(+972) 58-659-7088

Stephen Thaler, an individual

Plaintiff,

v.

ANDREW HIRSHFELD, Performing the Functions and Duties of the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office and UNITED STATES PATENT AND TRADEMARK OFFICE

Defendant.

Case No. 21-2347

Hearing Date: _____

Time: _____ a.m.

[AMICUS CURIAE MEMORANDUM IN SUPPORT OF AFFIRMING THE (DENIED) MOTION FOR SUMMARY JUDGMENT BY DISTRICT COURT]

/s/ Mitch Apper

Mitchell Apper, *pro se*

Dated this 15th day of November, 2021

THE FOLLY OF ARTIFICIAL INTELLGENCE AS INVENTOR

A. INTEREST OF AMICUS CURIAE

This *amicus curiae* represents the thoughts and opinions of a lone individual who has no interest, association or affiliation with DABUS, DABUS counsel, DABUS associates or the inventor of DABUS, Dr. Stephen Thaler. Nor does this *amicus* have any interest, association or affiliation with any of DABUS' competitors, their counsel, associates or affiliates. This *amicus* has no financial or any specific interest whatsoever in the outcome of the decision as to whether DABUS or any other invention is adjudicated to be its own inventor, or not.

This *amicus* is a registered patent practitioner (USPTO), engineer and inventor. During these past few years, this *amicus* has noticed the uncertainty and tumult arising from Alice-Mayo

decisions and corresponding (35 USC) §101 jurisprudence ripple through the USPTO, courts, business, legal and technology communities. The confusion surrounding software eligibility is compounded with respect to AI because AI is usually implemented as software, but is also generally more complex than traditional software. There are precious few equipped with sufficient detailed knowledge about both artificial intelligence and intellectual property law to make informed decisions regarding public policy where these two subject areas intersect. AI constitutes a vital part of much of current and future technology and commerce yet there is a lack of in-depth understanding of AI by judicial officers, clerks, and patent practitioners.

This *amicus*' sole interest in the DABUS case is in seeing the public, judiciary and legislatures of the United States as well as other jurisdictions, evaluate intellectual property law and policy related to artificial intelligence (AI) with integrity, rooted in accurate science and engineering.

B. ABSTRACT/THESIS

There is an awful lot of hype bandied about with respect to artificial intelligence.[1, 2] The plaintiff, Dr. Stephen Thaler, is capitalizing on marketing puffery, disinformation, propaganda and

---

1 "Questioning the Hype About Artificial Intelligence", Erik Larson, The Atlantic, May 14, 2015 https://www.theatlantic.com/technology/archive/2015/05/the-humanists-paradox/391622/

2 *"...DABUS may be considered "sentient"* in that any chain-based concept launches a series of memories (i.e., affect chains) that sometimes terminate in critical recollections, thereby launching a tide of artificial molecules. It is these associated memory sequences, and the accompanying

demagoguery to promote an agenda with the bogus narrative that DABUS is intelligent and should therefore be accorded status as an inventor.[3] The thesis of the plaintiff is something like: 1) DABUS generates an inventive product like that produced by a human inventor; 2) DABUS is an AI; 3) AIs are intelligent; 4) inventors are intelligent, therefore 5) DABUS should be regarded as an inventor just like a natural person. This syllogism is logically flawed and contains fatal category errors that render the conclusion false. One of these category errors is mischaracterizing AI's as themselves intelligent. A related and very confusing error is the failure by the plaintiff to distinguish between narrow AIs and AGIs. There is a gargantuan difference between an AI that performs an intelligent task as a so-called (narrow) AI and 'being intelligent'. A second category error is the failure to recognize the kinds of intelligence requisite for invention and conception and to falsely regard DABUS (or any other narrow AI) as possessing those intelligences. It is erroneous to characterize DABUS as intelligent because DABUS lacks any of the intelligence prerequisites for conception. A third category error is the failure to recognize the true inventor of the products of DABUS or any other AI. The true inventor of an AI's products and output is not the AI, but the inventor or inventors of the AI.

---

simulated neurotransmitter rush, that are *considered equivalent to subjective feelings in humans (i.e., sentience)*. In this way, *DABUS has an emotional appreciation for what it conceives.*", The Artificial Inventor Project (Stephen Thaler's website), see: https://artificialinventor.com/dabus/, retrieved on 14 November, 2021

3 *"The Myth of Artificial Intelligence"*, Eric J. Larson, Belknap Press of Harvard University, Cambridge, Massachusetts, 2021. see especially chapter 6 'AI as Technological Kitsch'.

DABUS is not intelligent in any way shape or form. Neither DABUS nor any other narrow AI computer program should be regarded as or accorded legal recognition as an inventor because narrow AIs do not conceive and conception is the cornerstone for determining inventorship. The DABUS computer program hasn't invented anything and is not capable of invention. The products of the DABUS computer program are the result of design, architecture and programming by a natural person - the actual inventor of DABUS' products.

C. BACKGROUND

An application for patent was submitted on 29 July, 2019 as US Application number 16/524,350. (the '350 invention/application) The relevant background is described in detail in USPTO Decision on Petition, dated April 22, 2020 in the section titled "Relevant Background".[4] In sum, plaintiff Stephen Thaler asserts that his creation, 'DABUS' is the inventor of the '350 invention, and the USPTO asserts that DABUS is not the inventor and that a natural person is required to be regarded as the inventor. Plaintiff Stephen Thaler filed a motion for Summary Judgment seeking to vacate the decision by the USPTO to deny plaintiff's request to have DABUS listed as the inventor for the application and patent, if the patent issues.[5]

---

[4] "USPTO *Memorandum "Decision on Petition", In re: Application No:16/524,350*", Robert W. Bahr, Deputy Commissioner for Patent Examination Policy (8 pages), USPTO.

[5] "Plaintiff's Memorandum of Law in Support of Motion of Summary Judgment", Case No. 1:20-cv-00903-LMB-TCBVAED

On September 2, 2021, Judge Leonie M. Brinkema of the Eastern District of Virginia ruled that the plaintiff's Motion for Summary Judgement be denied.[6] On September 24, 2021, Stephen Thaler filed an appeal to the Court of Appeals for the Federal Circuit from the Eastern District Court's decision.

When the court ruled to deny plaintiff Dr. Stephen Thaler's Motion for Summary Judgement, it only ruled on the basis of formal arguments even though there was substantial briefing presented by this *amicus* for the Court to address the substantive issue of whether DABUS – or for that matter any other (narrow) AI can rightfully be regarded as an inventor. And here is the rub – because while formal rules are meaningful, they do not penetrate into the heart of the issue before the courts. The substantive issue of whether (narrow) AIs can invent determines the interpretation of formalistic ruling and guides policy. Unfortunately, the lower court punted on addressing the substance of whether (narrow) AIs are technically capable of being inventors. The substantial question of whether or not a (narrow) can rightfully be regarded as an inventor is as important as any question in intellectual property law and touches on both legal, scientific and engineering issues.

---

6 "Memorandum Opinion", Stephen Thaler v. Andrew Hirshfeld, United States District Court for the Eastern District of Virginia, Alexandria Division, Case: 1:20-cv-903 (LMB/TCB), September, 2, 2021, Judge Leonie M. Brinkema.

As used in this context, 'formal' determination refers to whether or not, according to law, it's commentaries and interpretations, permit conferring the status of inventor onto a computer program. That question relates to whether or not a non-natural entity can be the inventor, legally. *Must an inventor necessarily be a natural person?* Whereas 'substantive' determination, instead, refers to whether or not it is *even possible* for an AI or computer program to invent or conceive.

There are two issues to be resolved by this Court: **Issue # 1** – Did the district court of the Eastern District of Virginia, correctly rule that DABUS should not be accorded the status of inventor, and **Issue # 2** – Given the current state-of-the-art, can a computer or an AI be rightly regarded as an inventor from the perspective of whether the AI is *technically capable* of invention? If the AI is not technically capable of invention, it is wholly inappropriate to regard the AI as an inventor even if the formal issues were not blocking such consideration.

This *amicus* believes that the previous court ruled correctly in this matter and requests this Court to affirm that ruling with respect to **Issue # 1**. However, **Issue # 2** requires the attention of this Court and this *amicus* urges this court to accept upon itself the responsibility for making this determination.

Leaving aside **Issue # 1**, a few of the questions, inter alia, that the court should consider to address **Issue # 2** are:1) Is the definition of conception as used in the MPEP and in the associated case law, correct? 2) Is conception a prerequisite for allowing a patent? 3) Are any of today's

AIs/computers capable of conception? 4) Did DABUS conceive with respect to the '350 and '532 patent applications?

D. NARROW AI VERSUS ARTIFICIAL GENERAL INTELLIGENCE (AGI)

The term 'AI' can and does have a range of meanings as it is used by workers in the field, and in everyday conversation by the public, media, and by those who work in intellectual property law. Sometimes, however these meanings become conflated, especially by persons who lack a technical understanding of AI and machine learning technology. AI can be used in two senses: (1) narrow AI or as (2) a general AI; these are two entirely different systems. It is not possible to have a meaningful and informed discussion about public policy, AI and intellectual property law without distinguishing between these two very different kinds of artificial intelligence.

In practice, any application that uses a neural network for pattern recognition, regression or clustering analysis is characterized as using AI. **As strange and paradoxical as it might sound, none of today's artificial intelligences are intelligent, rather they possess the capability of producing results and products – in very narrow domains - that appear intelligent.**[7]**.**

'Artificial Intelligence' was a slogan created by John McCarthy in 1956 at the Dartmouth

---

[7] "MIT AGI: Building Machines that See, Learn, and Think Like People", MIT course # 6.S099: Artificial General Intelligence, lecture by Professor Josh Tenenbaum, Lex Fridman and Josh Tennenbaum, Lex Fridman podcast, February 8, 2018, see at approximately 2:20 into the lecture https://www.youtube.com/watch?v=7ROelYvo8f0

conference to describe advanced computing. 'AI' is a misnomer; real intelligence comes from the mind of a human. Today, AI is clever software engineering, period. Scientists and engineers imagine that one day with further technical progress these narrow systems might advance and coalesce to exhibit some of the properties of general intelligence – but these are predictions and science fiction, not reality.[8] Examples of some of narrow AI applications include recommendation engines by Netflix, Spotify, YouTube or other media delivery services to serve up the entertainment that a consumer will most enjoy or for delivering marketing recommendations by companies like Amazon for their customers. Other narrow AI applications include mail sorting that deciphers handwritten zip codes to sort and route mail, facial recognition, image labeling used by tech companies to label images in their databases – and many other applications that we have come to accept as part of our daily culture, commerce and lives. Still other AIs are on the cutting edge of R&D and have garnered widespread recognition. The technology engine behind all of these generally includes some sort of machine learning multi-layered neural network. These technologies are used in pattern recognition, particularly activities which human beings employ all the time but whose algorithms can't be explicitly articulated. *Some of the characteristics of narrow AIs are*:

- They are capable of performing one or a few pattern recognition tasks, often as well as, or better than a natural person, sometimes even a highly skilled natural person,

---

[8] "Ray Kurzweil (USA) at Ci2019 – The Future of Intelligence, Artificial and Natural", Ray Kurzweil, CinnovationGlobal, November 4, 2019, https://www.youtube.com/watch?v=Kd17c5m4kdM

- They are usually limited to one or a few, narrow domains,
- They implement learning,
- As of February, 2021, there are many, many implementations, worldwide.

All current AIs right now, are designed by natural persons and their performance is a result of the programming that is architected into them by an engineer. At some point in time (in the future?), if they are able to operate without a natural person as designer, that might hint at artificial intelligence sufficient to characterize the AIs as inventive. We are not there now, nor are we on the verge of that capability.

In contrast to narrow AIs, there is a type of AI characterized as artificial general intelligence or AGI. There is no AGI right now nor has there has ever been any AGI. An AGI is an AI that can perform like a human being in a general manner across a variety of domains. An AGI would theoretically be able to understand spoken language and process the language by understanding the meaning and intent of the language and then generate an appropriate response to the language on a broad variety of topics in a free flowing conversation. A true AGI would be able to recognize individual people and recognize those people in different situations, as younger versions of older persons, as older persons of younger persons, sick from healthy, healthy from sick, in different costumes, with different hair styles, in passive and active settings, alone or in groups, and so forth. A true AGI would not only be able to learn from data, but to apply logical reasoning to that same learning, something that today's best learning technologies cannot achieve. In short, an AGI is the kind of computer portrayed in the movie '*2001 A Space Odyssey*' depicted as HAL, in the movie "Her", as depicted in the Star Trek '*Next Generation*' series as

Lieutenant Commander Data, or as Ava in *Ex Machina*, in which humans interact with machines and operating systems that are *conscious, sentient, driven and self-aware.* The Turing test is often used as the benchmark for determining if a machine is intelligent.[9] The AI that Alan Turing imagined in his classic work was one theoretical mechanism for ascertaining general machine intelligence.[10] However, the Turing test is necessarily the *de facto* metric for determining whether a machine is intelligent and cannot be the sole and definitive metric for ascertaining machine intelligence.[11] Alan Turing was a mathematician and viewed the future of computing through the lens of a mathematician solving math-type problems without the broader consideration of other types of intelligence. The Turing test can be gamed: in 2014 Eugene Goostman fooled 1/3 of the judges in an exhibition event that marked the 60th anniversary of

---

9 *"Inventing AI: Tracing the diffusion of artificial intelligence with US patents"*, **US Patent and Trademark Office, Office of Chief Economist**, IP Data Highlights, Number 5, October, 2000, (¶ 1).

10 *"Computing Machinery and Intelligence"*, Alan Turing, **Mind**, Volume LIX, Issue 236, October, 1950, pp 433-460.

11 "Marvin Minsky on AI: The Turing Test is a Joke!", interview with Marvin Minsky, **Singularity Weblog**, July 12, 2013. See the interview at about 23:30 into the interview. https://www.youtube.com/watch?v=3PdxQbOvAll

Turing's death.[12, 13] Over the years, many other tests have been proposed within the disciplines of cognitive psychology, neuroscience and the AI engineering communities towards establishing a metric to determine if a machine is intelligent. In 2017 Hector Levesque proposed the Winograd Schema test be used instead of the Turing test because Winograd constituted a more rigorous measure of intelligence.[14] These tests endeavor to define what is now called AGI.[15] Even with the notable advances in natural language processing, no AI has successfully passed either the Turing, Winograd Schema or any of the other proposed intelligence test, to have any kind of deep, meaningful conversation or exhibit other intelligence.

When scientists and engineers refer to the 'singularity', they are envisioning an AGI that is capable of accessing and processing all knowledge more quickly and expansively than any single or group of natural persons. The AGI would be endowed with awesome powers that far exceed

---

12 *Turing Test: Can Machines Think?*", Lex Fridman, April 27, 2020, see at about 12:00 into the lecture. https://www.youtube.com/watch?v=MGW_Qcgr9eQ

13 "*The Myth of Artificial Intelligence*", Erik J. Larson, Bellknap Press of Harvard University, 2021, page 59 and 'Part 2 – The Problem of Inference'.

14 "Common Sense, the Turing test and Quest for Real AI", Hector Levasque, 2017, Cambridge, MA, MiT press.

15 For an in-depth, summary of the Turing test as well as the other tests used by the AI community to determine intelligence, see Lex Fridman's lecture: "*Turing Test: Can Machines Think?*", Lex Fridman, April 27, 2020,

any single or group of humans and this is what drives the public debate about AI. Whether this singularity comes in 20, 50 or 80 years – if it comes, it will change mankind's very existence as much or more than the discovery of fire, the printing press or any other technology.

An AGI would be able to perform many of the same intelligences as a natural person and might even be able to conceive and invent. Such an AGI might be able to recognize business problems, the technical problems underlying those business problems and imagine new technological solutions to those technical problems. But such an AGI with these types of performance characteristics does not now exist. We can't even imagine an architecture for such an AGI and as of right now, it's just science fiction. If and when an AGI is developed, it will come about by combining and improving today's narrow AIs as building blocks, but there will also be a totally new system architectures and approaches that is unknown and absent at this time *Some of the characteristics of an AGI are*:

- It is the holy grail of artificial intelligence and probably incorporates and integrates many tribes of AI such as learning using the connectionist model, logical/symbolic representations, one shot/few shot, transfer learning, blending of supervised, unsupervised, reinforcement learning, and advanced search.
- Exhibits intelligence across many domains,

- An AGI can perform at or close to the full range of many kinds of human intelligence (see: *infra* in the heading '*Pre-requisite Markers of Intelligence Essential for Conception*'. An AGI can perform many types of intelligent tasks.
- As of November, 2021, there exist no implementations of an AGI. One prediction is that AGI will begin to emerge as soon as 2030-2050, but no one really knows. Many technical obstacles must be overcome before anything resembling an AGI is implemented.

"Intelligence cannot be measured by how well a machine performs a single task, or even several tasks. Instead, intelligence is determined by how a machine learns and stores knowledge about the world. We are intelligent not because we can do one thing particularly well, but because we can learn to do practically anything. The extreme flexibility of human intelligence requires many attributes such as the ability to learn continuously, to learn through movement, to learn many different models and to use general purpose reference frames for storing knowledge and generating goal oriented behaviors."[16] At this time, no AI possesses any of these attributes. DABUS is a narrow AI and plaintiff Dr. Stephen Thaler has not characterized the DABUS invention as a narrow AI in his legal paperwork, instead capitalizing on and conflating the gargantuan distinction between narrow AIs and an AGI.

In determining whether an AI is capable of conception, conflation of two distinct cases must be avoided:

---

[16] 'Why There is No I in AI', in "*A Thousand Brains*", Jeff Hawkins, page 134, Basic Books, NY, March, 2021.

Case # 1 (Narrow AIs) is where a natural person conceives, invents, designs, architects, codes, trains and tunes a narrow AI system where the narrow AI system can perform some useful work. The natural person who invents the narrow AI is the motive force of the invention and rightful conceiver. This natural person-inventor has a mind, has thoughts and ideas, and can make a showing that they were in possession of the inventive features at the time of conception. Computer implemented inventions performs exactly as they are programmed to behave, but the invention itself does not have a mind or ideas and can't explain why it did anything.

Case # 2 (General AIs) If an AI does certain useful work and that same AI is said to be the inventor of the work, this means that the AI *itself* creates the algorithms, the structures and techniques that it employs to do the computational work. In the case of an AGI, the *AGI itself* actually identifies and recognizes the problem(s) that it solves, conceives of the function, devises structure such as neural networks and their logic independently and *without input from a human knowledge worker*. In this case, neither the structure nor training from another (natural person) is used for a specific solution architecture to a specific problem. Such a technology may emerge one day, but that is not the case of today's narrow AIs.

This case, in many ways, pivots on the question of whether an AI is capable of conception and boils down to whether or not an AI possesses the requisite intelligence to conceive. No credible person would assert that a regular computer program or an unintelligent complex piece of machinery should be regarded as an inventor. Here, the plaintiff's sole basis for asserting

inventorship is that their AI possesses intelligence, can achieve the equivalent of conception and invention. This is why so much of this brief is dedicated to the issues of intelligence with respect to conception and inventorship.

There is a special relationship between invention and artificial intelligence. Invention deals with the creative energy and mental activity of the (natural) human mind, whereas artificial intelligence is the technical field tasked with how to emulate the activities of the human mind to produce those same products as a natural person This *special* relationship between these two fields suggests an analytical process that can be used to determine if an AI can rightfully be considered to be an inventor. This process first examines what kinds of intelligence are employed in the process of invention and conception. The second step assesses the specific features and characteristics associated with invention generally. The third step determines how the features and characteristics of invention, generally, correspond to designing a machine learning/neural network solution architecture. The fourth step is to determine if the intelligences necessary for generating the products of machine learning/neural network are possessed by the AI.

E. CONCEPTION REQUIRES INTELLIGENCE

There is considerable case law guiding our interpretation of what it means to conceive.[17] Here are three bullet points from this case law.

1. CONCEPTION REQUIRES HAVING A MIND

Townsend v. Smith teaches that "the complete performance of the mental part of the inventive act" is conception and "the formation in the mind of the inventor of a definite and permanent idea of the complete operative invention as it is thereafter to be applied in practice" constitutes 'conception'.[18] These words communicate that the conceiver of the invention must possess a mind. MPEP §2138.04 I reads "conception must be done in the mind of the inventor". None of today's AIs possess anything remotely resembling a mind, nor is there is a definition of 'mind' that resembles that which is described in any narrow AI.

2. CONCEPTION REQUIRES THE MIND TO FORM IDEAS

As a judicial test, "an exercise of the inventive faculty" has long been regarded as an absolute prerequisite to patentability.[19] *Bosies v. Benedict* teaches that "the inventor must form a definite and permanent idea of the complete and operable invention to establish conception[20]. *Hybritech Inc. v. Monoclonal Antibodies Inc.* teaches that "(Conception is the "formation in the mind of

---

17 MPEP 2138.04

18 *Townsend v. Smith,* 36 F.2d 292,295, 4 USPQ 269, 271 (CCPA 1929)

19 Dann v. Johnston, 425 U.S. 219, 225 (1976)
see: *"Invention as the Absolute Prerequisite to Patentability"*, Dennis Crouch, November 9, 2021, PatentlyO

20 *Bosies v. Benedict,* 27 F.3d539, 543, 30 USPQ2d 1862, 1865 (Fed. Cir. 1994)

the inventor, of a definite and permanent idea of the complete and operative invention,[21] as it is hereafter to be applied in practice."), and *Townsend v. Smith* ruled that a conceiver of the invention must generate the idea of the invention.[22] It may be that narrow AIs can be said to perform sometimes amazing computational feats, but they do not model, represent or process definite and permanent ideas. Narrow AIs do not understand anything that they are doing within the broad meaning of 'understanding' and neither their functionality nor their structure, model or represent thoughts or ideas. Narrow AIs don't implement anything like thoughts or ideas because their computational performance is an implementation of complex structures whose parameters have been set using clever training techniques such as gradient descent, backpropagation and the use of objective (cost) functions. The execution of these narrow AI functions, in inference, is not thinking or cognition but rather the execution of a computer circuit that has been defined by a human inventor.

3. THE INVENTOR MUST THEMSELVES BE IN POSSESSION OF THE INVENTIVE CONCEPT

Narrow AIs are not themselves in possession of any inventive concept at the time of invention, and thus do not conceive. *Gunter v. Stream* teaches that "It is settled that in establishing conception a party must show possession of every feature recited in the count, and that every limitation of the count must have been known to the inventor at the time of the alleged

---

21 *Hybritech Inc. v.Monoclonal Antibodies Inc.,* 802 F. 2d 1367, 1376,231 USPQ 81, 87 (Fed. Cir. 1986)

22 *Townsend v. Smith,* 36 F.2d 292,295, 4 USPQ 269, 271 (CCPA 1929)

conception.[23, 24] Conception must be proved by corroborating evidence." If an AI is to be regarded as an inventor, that means that the AI itself must prove by corroborating evidence that it was in possession of every feature in the count (claim) and known to itself at the time of the invention.[25] None of today's (narrow) AIs can do this.

4. THE CONCEIVER MUST BE ABLE TO EXPLAIN THE INVENTION

"Conception is established when the invention is made sufficiently clear to enable one skilled in the art to reduce it to practice without the exercise of extensive experimentation or the exercise of inventive skill." [26] Conception has also been defined as a disclosure of an invention which enables one skilled in the art to reduce the invention to a practical form without "exercise of the inventive faculty." [27]

The gist of this case law is that conception requires a conceiver to: 1) have a mind, 2) form ideas, 3) themselves – be in the possession of an inventive concept at the time of the invention, and 4) be able to corroborate invention and explain its inventive concepts. Having a mind indicates that

---

23 *Gunter v. Stream,* 573 F.2d 77, 197 USPQ 482 (CCPA 1978).

24 see also, *Coleman v. Dines,* 754 F.2d 353,224 USPQ 857 (Fed. Cir. 1985)

25 Hybritech Inc. v.Monoclonal Antibodies Inc., 802 F. 2d 1367, 1376,231 USPQ 81, 87 (Fed. Cir. 1986)

26 Hiatt v. Ziegler, 179 USPQ 757, 763 (Bd. Pat. Inter.1973).

27 Gunter v. Stream, 573 F.2d 77, 197 USPQ 482 (CCPA1978).
see also Coleman v. Dines, 754 F.2d 353,224 USPQ 857 (Fed. Cir. 1985)

there must a source of intelligence. Some who read the word 'mind', think that a mind is necessarily a uniquely human characteristic or feature. However, it might one day be possible for a computer system or a network, to be considered to be a mind. It might also be possible, one day, for that mind to form ideas and to be in possession of an entire inventive concept at the time of invention. We don't know what the future will bring, but it is also clear this technology doesn't exist yet, though it might one day.

This case law is expressing that the motive force of the mental energy used in conception must, and a) possess the intelligence to independently generate an inventive concept, and b) generate the inventive concept themselves. Forming an idea and being in possession of an entire inventive concept at the time of invention are products of intelligence, so in order to determine whether or not any AI is capable of conception and thus invention, a determination as to whether the AI possesses the intelligence necessary for conception is necessary.

5. *THRESHOLD OF CONCEPTION FOR PATENTABILITY MUST BE SIGNIFICANTLY MORE*

There are additional elements necessary for conception as applied to patentable invention. A patentable conception must be novel and non-obviousness and must fulfill the conditions of eligibility by exhibiting unconventional technological solutions to technological problems and

contributing technological improvements to the art or technology.[28, 29, 30] The new results of a patentable concept should be unpredictable and unexpected pursuant to non-obviousness criterion of 35 USC §103. Conception constitutes a special case of intelligence. There are basic thresholds for patentability which necessitate not mere intelligence, but a degree of intelligence that is well beyond and of a substantially higher caliber than ordinary intelligence because a patentable inventive concept requires more than ordinary skill in the art.[31] So too, the conceiver of a patentable invention must be able to apply synthetic imagination, creativity and intelligence that is greater than found in a PHOSITA.

---

28 "Patent Eligibility: Advantages over Prior Art are Not Sufficient without Meaningful Technological Improvement", Dennis Crouch, PatentlyO, October 19, 2020 https://patentlyo.com/patent/2020/10/eligibility-technological-improvements.html

29 "Alice Corporation Pty. Ltd. V. CLS Bank International, et al.", 573 U.S. 208, 134 S. Ct., 2347 (2014 https://www.supremecourt.gov/opinions/13pdf/13-298_7lh8.pdf

30 'Unconventional' refers in part to the Alice-Mayo framework analysis step 2B, MPEP 2106.05, "Subject Matter Eligibility", Examination Guidelines (see October, 2019 updated guidelines) https://www.uspto.gov/patents/laws/examination-policy/subject-matter-eligibility. also see: *Enfish, LLC v. Microsoft Corp.*, 822 F.3d. 1327, 1334, 118 USPQ2d 1684, 1688 (Fed.Cir. 2016), *Amdocs (Israel), Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1316,120 USPQ2d 1527, 1549 (Fed. Cir. 2016), and
Ancora Technologies, Inc. v. HTC America, Inc., CAFC Appeal # 18-1404, November 16, 2018. see: http://www.cafc.uscourts.gov/node/24063

31 MPEP 2141.03

F. PREREQUISITE MARKERS OF INTELLIGENCE ESSENTIAL FOR CONCEPTION

The process of invention and conception are functions of intelligence and are products of the mind and brain. We still don't know enough about cognitive psychology or neuroscience to fully understand how the mind works and are still in the dark about many cognitive processes such as how learning occurs. There are tens of thousands of scientists all over the world who are trying to piece together how the mind and brain work. There has been some progress, but when it comes to understanding the mechanism of action for how the brain's synthetic imagination – how conception occurs, this is still largely unknown.[32]

---

[32] Some examples of institutions that are engaged in this research are shown:

The Human Brain Project, European Union's Horizon 2020 Framework Programme for Research and Innovation under the Framework Partnership Agreement No. 650003 (Human Brain Project FPA). https://www.humanbrainproject.eu/en/

"The Blue Brain Project", EPFL, https://www.epfl.ch/research/domains/bluebrain/

"How Big Science Failed To Unlock the Mysteries of the Human Brain", Emily Mullin, MIT Technology Review, August 25, 2021 https://www.technologyreview.com/2021/08/25/1032133/big-science-human-brain-failure/

"Why Did the Human Brain Project Crash and Burn?", COSM, Mind Matters News, December 9, 2020 https://mindmatters.ai/2020/12/why-did-the-human-brain-project-crash-and-burn/

Center for Brains, Minds and Machines, MIT, https://cbmm.mit.edu

Allen Institute, Seattle Institute, https://alleninstitute.org

Numenta, Redwood City, https://numenta.com

There are certain characteristic cognitive abilities that confer and enable natural persons to conceive. We refer to these as 'intelligence'. Clearly defining intelligence is a tricky and thorny subject because it can be defined in a multiplicity of ways.[33] A detailed discussion of what constitutes intelligence would constitute an unnecessary distraction from the subject at hand. In order to sidestep the philosophy of what it means to be intelligent, we instead concentrate on the specific attributes of intelligence that are essential for invention. These are referred to as 'markers of intelligence'. It remains to be seen whether these markers of intelligence can ever be conferred into or onto an artificial intelligence. This following list may not be comprehensive as to identifying every marker of intelligence, but it is hoped that its contents illustrate the point that the ability to conceive is rooted in certain cognitive abilities, without which conception could not occur.

1) An intelligent person possesses *agency; independent motive intellectual energy.* An intelligent person has *personal cognitive initiative.* This capability is a necessary requirement for conception. One aspect of this intelligence is the ability to understand self as distinguished from non-self. Bound up in this human intelligence is the human ego which forms the desire to recognize problems. Without an ego and independent motive force, a natural person cannot focus his or her mind on solving a problem.

---

33 "What does it mean to Be Intelligent?", Howard Gardner, The Royal Institution, Harvard Graduate School of Education, September 29, 2000, published on November 5, 2020. https://www.youtube.com/watch?v=vTfWQwo2-RY

2) An intelligent inventor independently possesses a kind of restlessness or dissatisfaction with the status quo which motivates their desire to improve some method or invent a new apparatus. Indeed, one of the Supreme Court's definitions of 'invention' eligible for the award of patent protection is 'improvement in technology' [34, 35, 36]. This restlessness comes from human emotions such as curiosity and ambition, qualities that are not associated with computers, at least not computers in today's state-of-the-art. These emotions motivate an inventor to recognize a problem – often a technical or technological problem and to devise a technical /technological solution for that problem.

3) A natural person possesses a great deal of knowledge about the world. This includes an awareness and understanding of many facts about many different subjects together with a framework for how to organize and process these many facts. This knowledge includes facts that we humans learn from our parents and family, in school, from personal experience, reading and viewing media as well as feedback from moving around and interacting with the world around us.

4) Another type of knowledge that is part and parcel of basic human intelligence is the accumulation and deployment of commonsense reasoning and understanding of many

---

[34] 35 USC §101

[35] Alice Corp. v. CLS Bank International, 573 U.S. 208 (2014)

[36] Enfish, LLC v. Microsoft Corp., 822 F.3d 1327 (Fed. Cir. 2016)

phenomenon and how these interoperate in a unified world view. For example, basic intelligence for most humans includes the ability to understand spoken and written language. This includes not only a simple meaning, but a nuanced understanding of words, phrases and metaphor; This intelligence includes the ability to express one's thoughts verbally, to process 2D images, to reason spatially, to seamlessly transform a 2D scene into its 3D equivalent in the mind's eye and vice versa, some degree of perception of time – past, present and future as well as some degree of understanding of physical as opposed to non-physical existence. Natural persons possess the ability to generalize rules and to understand exceptions to the very rules that they create, possess an imaginative faculty, and to plan. Natural persons also understand the world because of sensori-motor feedback. We know that when an object is dropped it will fall to the ground even when we don't understand the theoretical physics of gravity. We can apply the lessons of living – say how to balance in riding a bicycle and we can extrapolate broadly. There are hundreds of thousands, millions, or tens of millions of bits of knowledge that go into the everyday reality of commonsense reasoning across a broad range of domains and natural persons, generally can operate in a world with an implicit understanding of these many domains in many levels of conceptual hierarchies.

5) Humans possess inductive and deductive reasoning, are capable of combining different kinds of intelligence, can learn and apply logic seamlessly. The AI technology that has achieved the most attention for learning is part of the connectionist school of machine and deep

learning. However, the symbolic school of AI represents knowledge using symbols and manipulates those symbols using logic. Natural persons can both learn and apply logic.

6) Related to commonsense reasoning is an understanding of thoughts and ideas. A natural person understands many ideas in a far-reaching range of categories and is able to connect how these ideas are similar or different, share different elements, are abstract, metaphorical or constitute literal physical relationships. Humans understand ideas like time or physical relationships or the broad range of relationships between objects, places, and people at many levels of abstraction. Humans understand the ideas of cause and effect. These are only some of the characteristics of intelligence; there are others.

7) Another type of knowledge that is essential to an inventor's basic knowledge, and which is above and beyond that of baseline intelligence is a know-how of the sciences, engineering and technologies that relate to one or more particular arts. An inventor would not only be in possession of commonsense knowledge, but also have a working knowledge of mechanics, physics, biology, botany, software engineering, etc... This knowledge includes a combination of theoretical textbook knowledge as well as applied understanding of how this theory operates in the world, practically.

8) Still another type of knowledge that is essential for conception is a broad awareness of prior art. This is needed at least so that an inventor does not re-invent inventions that already exist, but also because much conception consists in creating new combinations of elements that do already exist. The awareness of prior art is not the type of knowledge that comes from accessing data in a database. Nor is it the kind of clever text analysis used by Watson when it

won the world Jeopardy championship. Watson won at Jeopardy not because it understood the topics and articles in its Wikipedia database, but through clever searching. An AI that conceives new inventions must incorporate sufficient intelligence that it can discern the relative value of each inventive concept (and claim) in the patent with respect to the prior art. It must understand the prior art.

9) The intelligence required for conception of inventions requires synthesis all of these different kinds of knowledge so that the inventor holds together in his or her mind a) commonsense knowledge about the world, b) many facts of general knowledge about the world, c) basic and practical science and engineering knowledge and d) knowledge of prior art, and

10) A natural person-inventor employs his or her *independent motive intellectual energy* together with his or her *restlessness or dissatisfaction* with the world, motivated by his or her *curiosity and ambition*, to independently arrive at one or more practical applications that are useful, by providing a technological solution to a technological problem, and generally improve a technology.

11) At some point in the inventive process, the conceiver must be able to explain the reasoning process at least sufficiently for reduction to practice. In one instance, the reasoning process must be used to convey to a patent practitioner enough about the invention so that the practitioner can draft and prosecute an application. One aspect of the intelligence requisite for conception is the independent enablement and written description of a new functionality, functions and methods, another element of conception is to define the structure(s), steps, methods, configuration techniques to implement an inventive concept and still to articulate

how the function corresponds to the structure. In another instance, the inventor must also be able to present sufficient details to fulfill the enablement and written description requirements of 35 USC §112. Conception, by itself is only the first part of invention.[37]

The act of invention for patenting is of a *higher caliber of creativity than that possessed by an artisan having ordinary skill in the art.*[38] The intelligence requirement for an inventor to evaluate his or her invention in light of non-obvious criterion demands high-level abstract reasoning. This is indeed a high level of intelligence as discerning non-obviousness is one of the most difficult aspects of intellectual property law.

Joseph Rossman in the "Psychology of the Inventor" cites several characteristics that are normally associated with either intelligence *per se* or as human personality traits as central qualities to invention: perseverance, originality, imagination, reasoning and intelligence, analysis and keen observation.[39]

G. CORRELATING PREREQUISITE INTELLIGENCE FOR INVENTION AND CONCEPTION

---

37 see *supra,* "The Conceiver Must be Able to Explain the Invention", in 'Conception Requires Intelligence'.

38 see *supra,* "Threshold of Conception for Patentability Must be Significantly More", in 'Conception Requires Intelligence'.

39 *Motives of Inventors*' in "*The Psychology of the Inventor*" (p 40), Joseph Rossman, The Inventors Publishing Company, Washington, D.C., J W. Stowell Printing Co., Federalsburg, Maryland, 1931. https://babel.hathitrust.org/cgi/pt?id=mdp.39015066018188&view=2up&seq=6

The process of inventing can be summarized as consisting of 6 general steps. The steps as enumerated here could be refactored - but this list suffices to illustrate the mental activity of invention and conception. These are the independent ability to: 1) recognize a problem, usually a technological problem, 2) possess the motivation to solve that problem, 3) identify elements (or steps) of the invention that solves the problem, 4) combine those elements into an overall invention, 5) ascertain if and how the combination of elements – the invention as a whole – does or does not solve the original problem, and 6) control and determine that the invention as a whole, in combination, is novel and non-obvious.

An inventor must be said to be have the independent ability to perform these 6 tasks because if the inventor does not possess the ability to independently perform these tasks, then they are not the inventor – they are relying on another, actual inventor.

The attached chart, shown as figure 1 (p.31), "Inventive Activity – Intelligence Matrix and Analysis" shows the relationship between the inventive activities just articulated that are requisite for invention, and some of the prerequisite markers of intelligence that natural persons possess and that are essential for performing these inventive acts. These 'types of intelligence are previously explained on pages 24-28.

The analysis shown in figure 1 highlights that every element of invention requires aspects of intelligence that *at the present time only natural persons possess*. In the main area of the figure, on the left, a column labelled "Mental Activities Prerequisite for Invention and Conception"

shows the elements of invention as described above on page 33. To the right, are columns labelled "Markers of Intelligence" showing a tic mark ('x') where a given mental activity for invention demands a particular type of intelligence. Columns 1-10 under 'Markers of Intelligence' correspond to the types of intelligence described, *supra*, as "Pre-Requisite Markers of Intelligence Essential for Conception". This chart graphically illustrates that invention requires a wide variety of different types of intelligence.

A	B	C	D	E	F	G	H	I	J	K	L
	Inventive Activity - Intelligence Matrix and Analysis										
					Markers of Intelligence						
		1	2	3	4	5	6	7	8	9	10
	Mental Activities Prerequisite for Invention and Conception	Agency	Restlessness	Broad Accumulated Knowledge	Common Sense Reasoning	Knowledge Science & Engineering	Knowledge of Prior Art	Synthesis of all Knowledge	Application of Agency, Restlessness & Ambition	Explain How & Why	Evaluate as Unexpected/ Upredictable
1	Recognize a problem, usually a technological problem,	x		x	x	x	x	x	x	x	x
2	Possess the motivation to solve that problem,	x	x								
3	Identify elements of the invention that solves the problem,	x		x	x	x	x	x	x	x	
4	Combine the elements into an overall invention,	x		x	x	x	x	x	x	x	x
5	Ascertain if and how the combination of elements – the invention as a whole - does or does not solve the original	x		x	x	x	x	x	x	x	x
6	Control and determine that the invention as a whole, in combination is novel and non-obvious	x		x	x	x	x	x		x	x

Figure 1

H. THE TRUE INVENTOR

1. TWO-PHASE SIGNATURE OF ALL MACHINE LEARNING NEURAL NET INVENTIONS

Machine learning solution architectures operate as two phase systems. Consider the circles shown in figure 2. The left-most circle is where the vast amount of creative and technical mental work occurs. This is the design-architect-train-tune phase or 'phase 1' where an engineer or a team of engineers performs the following 10 activities: 1) envision technological problem, 2) devise solution architecture, 3) select neural network(s) to employ, 4) configure the networks, 5) formulate an objective function, 6) configure solution architecture, 7) devise data pipeline, 8) devise a feature representation, 9) train the network with data, 10) debug and tune the hyperparameters.[40] This particular list of activities could be refactored, but these are the activities involved in 'inventing' or creating a neural network. The end product of creating a working neural network, machine learning, or deep learning system is shown in the middle circle of figure 2 as a (narrow) AI. This AI is trained and ready to be used with naïve data – data that the network hasn't been exposed to, and can be called 'phase 2'. Engineers in the field refer to

---

[40] These 10 steps in designing and deploying neural networks are generally described in 1) "Neural Networks and Deep Learning", Michael Nielson, http://neuralnetworksanddeeplearning.com, 2) "Make your own neural network", Tariq Rashid, and 3) "Machine Learning", (an online course), Andrew Ng, Coursera, https://www.coursera.org/learn/machine-learning. and https://www.coursera.org/courses?query=machine%20learning%20andrew%20ng

phase 2 as an inference engine. The inference engine is only useful after all of the previous 10 steps have been achieved and can't be employed unless it has been set up, trained with data and until the network hyperparameters have been tuned. Furthermore, there is no AI that exists as a phase 2 inference engine without the corresponding steps denoted in phase 1. Each inference engine must be customized for the specialized task for which the AI is intended. Once all of this is done, the AI can be used for a practical effect to generate a product, as shown in the circle in the rightmost part of figure 2. There is no machine learning or neural network-based system that can operate without the 10 steps of design that are performed in phase

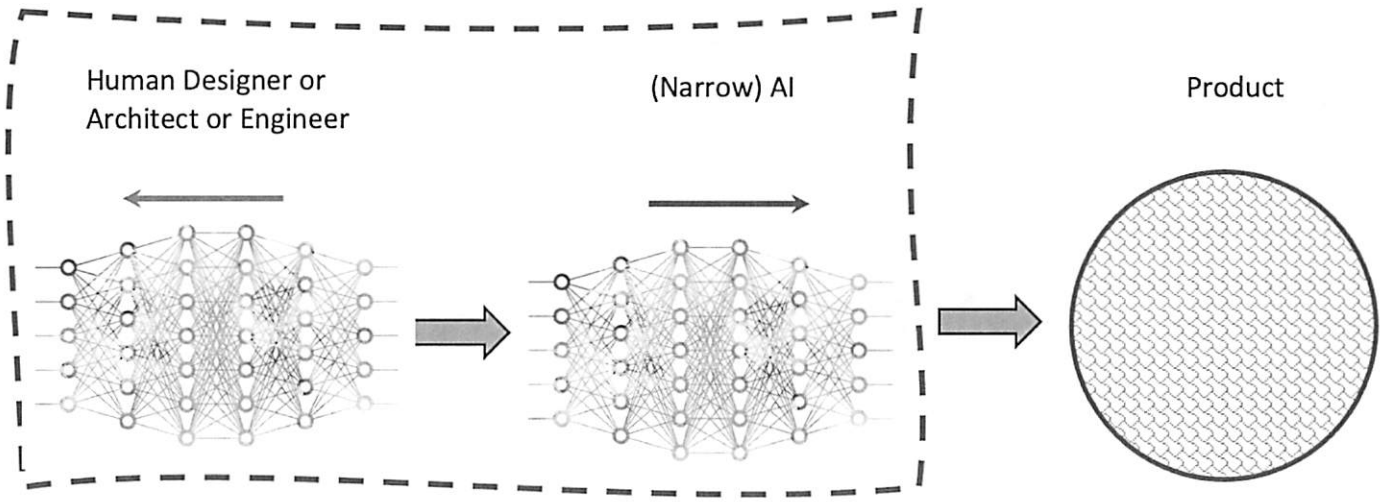


Figure 2

AIs must be devised and have their solution architectures designed. Neural networks are not magically endowed with the ability to perform intelligent tasks. It is therefore instructive to consider that neural network-based AIs are a two phase affair, where the first phase is in creating

the solution architecture and the second phase, the inference phase, deploys the trained network inference engine.

One way to think about phase 1 versus phase 2 is in understanding the big picture of what each phase is doing in the neural network. In conventional programming a software engineer prepares an algorithm by explicitly defining the variables in a computer program and then using his or her knowledge of software technology to architect the program to solve a problem. The end product is a program that embodies one or more algorithms. In machine learning neural network programming, the programmer doesn't explicitly define the algorithm. Instead, phase 1 is a process wherein the programmer sets up a network, data collection and processing system to create an algorithm using data to train the network – usually with lots of data (as described above in steps 1-10) The end product of neural network phase 1 is still a computer program with an algorithm(s). In both cases of conventional and neural network programming, the creative, skilled and inventive work lies is in architecting the program and generating the algorithm. The true inventor of a machine learning neural network is the person with the intelligence, motive energy and imaginative faculty who sets up and designs all of the phase 1 activities.

Once the algorithm(s) and program are developed, anyone can use that program and algorithm even if they lack an understanding of how it operates, why it was created in the manner that it was created or its implementation details.

2. THE TRUE INVENTOR IS HE/SHE WHO CONCEIVES OF FUNCTION AND STRUCTURE

All invention revolves around function and structure. Broadly speaking, function describes what an invention does and structure describes the configuration and mechanism of action of the

elements that perform the function. One way to think about the relationship between function and structure (or function and methods steps) is that the structure explains how an invention operates.

The courts have repeatedly ruled that patents are ineligible and unenforceable when they claim only a result. One of the essential elements of eligibility lies in whether an inventor defines how to achieve a given result. Case law in this regard is consistent and clear. McRO Inc.v. Bandai Namco Games America, Inc., Enfish LLC v. Microsoft Corp, Trading Techs Int'l v. CQG, Inc. and SRI Int'l v. Cisco Systems were all lauded by CAFC justices because the claims and supporting specification taught how to achieve a result. The courts disparaged claims and patents that taught only results without teaching how to achieve the results as in Electric Power Group, LLC v. Alstom S.A., Two-Way Media Ltd. v. Comcast Cable Communications, LLC, and American Axle & Mfg. v. Neapco Holdings, LLC. The governing principal from these CAFC cases is that one of the essential ingredients for eligibility is determined by the disclosure of how an invention operates – the invention's structure and steps.

When a human inventor explains the implementation details of how an invention operates and how to make and use the invention - it constitutes evidence that the inventor is in possession of the inventive concept and it fulfills the requirement of teaching the invention operation to the public. A corollary principle is that he or she who identifies and formulates how an invention behaves and works its function and structure – is the rightful and true inventor.

3. THE TRUE INVENTOR IS THE ORIGINATOR OF THE SOLUTION ARCHITECTURE

Software engineers and computer scientists use the term 'solutions architecture' to refer to the sum total of the individual hardware, software, data structures, algorithms, methods, steps, design patterns and how they are assembled to interoperate, at either a high level or in code, to solve a particular problem.

Each one of the 10 activities cited above on page 33 in "Two Phase Signature of All Machine Learning Neural Net Inventions" is associated with one or more of the 6 general steps of invention and conception articulated on page 30 in "Correlating Prerequisite Intelligence for Invention and Conception". For example, step 1 in phase 1 'Envisions Technological Problem' is associated with # 1 in the general steps: 'Recognizing a Problem', 'step 2 in phase 1 'Devises Solution Architecture' is associated with general steps 2 through 6, step 3 in phase 1 'Selects Neural Network to Employ' is associated with step 3 of the general steps 'Identify Elements (or steps) of the Invention that Solves a Problem', step 4 of phase 1 'Selects Configuration of Networks' is associated with step 4 of the general steps, step 5 of phase 1 'Formulates Objective Function' is associated with steps 3 and 4 of general steps, step 6 of phase 1 'Configures Solution Architecture' is associated with steps 3 and 4 of the general steps, step 7 of phase 1 'Devises Data Pipeline is associated with general steps 2, 3 and 4, step 8 of phase 1 'Decides on Feature Representation' is associated with steps 2, 3 and 4 of the general steps, step 9 of phase 1 'Trains Network with Data' is associated with steps 2, 3, 4 and 5 of the general steps, and step 10 of phase 1 'Debugs/Tunes Hyperparameters' is associated with steps 1, 2, 3, 4, and 5 of the general steps.

To summarize: (a) In today's technological environment, It is impossible to deploy any machine learning neural-network based AI such as the one shown in phase 2 of figure 2, without first developing and fulfilling all of the 10 steps that transpire in phase 1, (b) all of the activities in phase 1 of designing and deploying a neural net are associated with one or more of the general steps of invention and conception, (c) as shown on page 30, the general steps of invention – and therefore each prerequisite step in the design and deployment of a neural network – requires markers of intelligence, and (d) no narrow AI possesses even one of the markers of intelligence essential for invention and conception.

There is only one logical and inescapable conclusion: the true inventor of the products of an AI is not the trained inference engine itself, but the natural person who devised the solution architecture for that inference engine and did all the rest of the mental work for the other 9 steps describe above.

I. NARROW AIS ARE INCAPABLE OF THE INTELLIGENCE REQUISITE FOR CONCEPTION

1. MOVE 37

In the second game of the March, 2016 match with its opponent, Lee Sedol and Go commentators throughout the world were shocked by (Deep Mind's) AlphaGo move 37. That move led AlphaGo to defeat Sedol, the undisputed world Go champion. Move 37 was not alone in achieving remarkable AI achievements. Deep Mind has applied their collective industry and genius to many other problems using combinations of reinforcement learning and sophisticated searching, and other types of AI. Their lineup of accomplishments include their entire Alpha line

up - Alpha Go, Alpha Zero, Alpha Star, Alpha Fold and Alpha Mu. Other notable and impressive AIs include Open AI's GPT-3, Open AI Five, BERT, and autonomous driving systems by Tesla, Waymo or Mobile Eye, include Boston Dynamics robots, IBM's and Watson which defeated of the world champion in Jeopardy. Other AIs include generative adversarial network (GANs) AI created original art that sold at Christie's auction house for $432,500 in 2018 shown in Figure 3 [41] and an AI poker that can defeat multiple professional poker players at once. Some neural networks trained on images of x rays or CAT scans and MRIs can perform diagnosis by evaluating scans or images with greater accuracy than world class physician experts. By now, these achievements are well-known.

It certainly appears that Move 37 as well as the products of many other AIs, narrow or not, are unexpected, unpredictable and beyond any well understood , routine and conventional strategy or tactic known in the world of Go. Once trained (narrow) AIs can outperform human experts in many tasks. These AIs certainly appear to act intelligently and to be capable of generating original work products that are novel and non-obvious.

---

41 "The AI Art as Christie's is Not What You Think", Jason Bailey, October 14, 2018, Artnome. https://www.artnome.com/news/2018/10/13/the-ai-art-at-christies-is-not-what-you-think

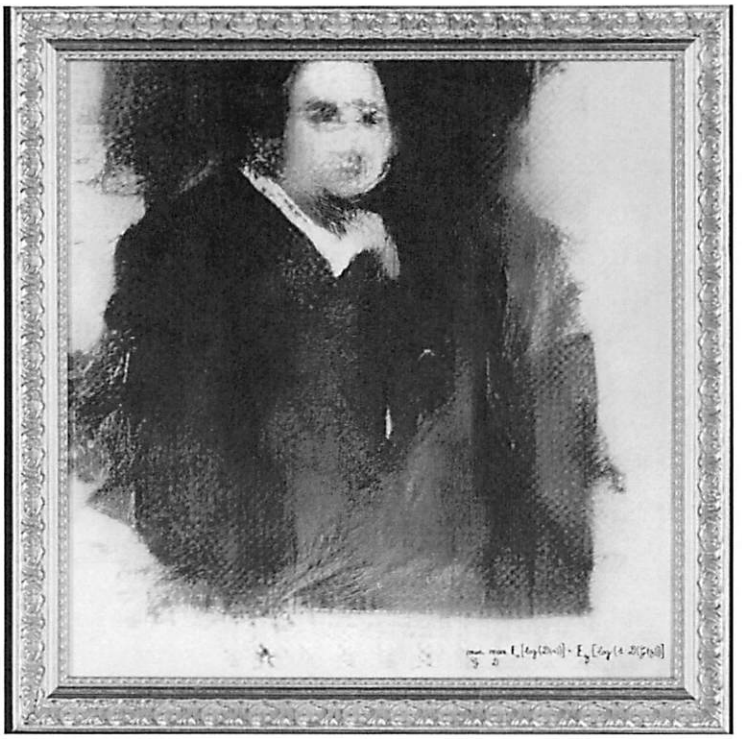


Figure 3

What appears as intelligence is a form of computer prestidigitation. To those who don't understand how AIs operate, one sees the results of these AIs and thinks "Wow, the computer is truly intelligent". Just like the theatrical magic though, computer intelligence is also an illusion. Though magicians are loathe to tell their secrets, the magic of AI is right in the published papers, textbooks and lectures for anyone who is interested to uncover. The problem is that for the uninitiated, AI is more complex than understanding how a card trick enchants or how a rabbit disappears from a magician's hat. Understanding magic tricks does not require intense study requiring years of toil in graduate programs at university. Understanding AI requires knowledge of cognitive psychology, neuroscience, probability and statistics, 3rd semester multivariable calculus, sorting and searching algorithms, and so much more. For many who are exposed to the

AI hype it's just easier to look at the results without digging in deeper to realize that today's AI is not intelligent by any stretch of imagination.

Some of these AIs appear to be creative, and exhibit synthetic imagination – hallmarks of intelligence and indeed, these AIs do constitute remarkable feats of engineering by teams of extraordinarily gifted scientists and engineers. But all of these systems perform exactly as they were programmed to behave. They are all executing algorithms that have been generated by training and since so much effort has been invested in training and architecture, it appears to casual observers that the computer is 'thinking' and is 'intelligent', when in fact, the computer is executing step by step instructions, transparently, at lightning speed. The fact of the matter is that most of today's AI is based on decades-old ideas that have just been made possible with hardware such as parallel processors and advanced computer chips.[42] None of these programs is intelligent in the sense that it is actually employing synthetic imagination that is drawing on a broad set of knowledge to solve a one or more problems that the computer itself has recognized. If your response to this statement is that human intelligence is nothing more than natural persons behaving according to their programmed algorithm, this is not true. We don't know how human intelligence operates! We don't even fully understand the nervous system of the frog yet, and despite the magnificent work done by neuroscientists the world over, we don't yet understand

---

42 *"Liquid Neural Networks"*, Ramin Hasani and Daniella Rus, Distributed Robotics Lab, CSAIL and CBMM, MIT, October 5, 2021, see. Professor Rus' comments at approximately 2:00 into the lecture. https://www.youtube.com/watch?v=IlliqYiRhMU

how the brain learns or how all of the neurons in our brain interact to produce intelligence. Cognitive psychologists still don't know how our mind functions to produce intelligence or the many different types of intelligence. Every person has free will. Human cognitive processes, neurophysiology, psychology and intelligence which is still very mysterious. It doesn't resemble anything like an algorithm in the sense that word is used in connection with computers.[43, 44, 45]

---

[43] *"Today, even neuroscientists have almost no idea what even a single neuron is doing. A single neuron appears to be much more complex than we are able to characterize with neuroscience ... no one – no human, understands it ... Exactly how neurons in a human brain learn (occurs) is through a very mysterious process, and it's completely unclear today whether the human brain uses an algorithm that is anything like backpropagation or gradient descent or if there is some fundamentally different principle that the human brain uses to learn."* --- Andrew Ng, Professor, Computer Science and AI , Stanford University. "What does this have to do with the brain? (C1W4L08)", lecture # 43, Andrew Ng, Deeplearning.AI, see: https://www.youtube.com/watch?v=2zgon7XfN4I&list=PLkDaE6sCZn6Ec-XTbcX1uRg2_u4xOEky0&index=44&t=0s. see at approximately 1:30 into the clip for this quote.

[44] *"...computers using artificial intelligence and machine learning are not actually thinking like a human brain or anything close to that..."* ---Steve Wozniak, co-founder of Apple computer company. See: *"Steve Wozniak: How Steve Jobs would react if he could see Apple today"*, Dagbladet Borsen, published on YouTube on November 21, 2019 and interviewed by Lasse Ladefoged. See at approximately 4:20 into the interview. see: https://www.youtube.com/watch?v=PhBVRFKVGxU

[45] *Stanford Seminar – Can the brain do back-propagation?"*, Geoffrey Hinton, StanfordOnLine – Center for Professional Development: scpd.standford.edu, April 28, 2016, https://www.youtube.com/watch?v=VIRCybGgHts

2. TODAY'S AIS ARE NOT INTELLIGENT BECAUSE THEY ARE NARROW & INFLEXIBLE

Brain researcher, tech entrepreneur and AI engineer Jeff Hawkins notes in '*A Thousand Brains*' "The biggest reason that today's AI systems are not considered intelligent is that they can only do one thing, whereas humans can do many things. In other words, AI systems are not flexible. Any individual human, such as you or me can learn to play Go, to farm, to write software, to fly a plane, and to play music We learn thousands of skills in our lifetime, and although we may not be the best at any of these skills, we are flexible in what we can learn. Deep learning AI systems exhibit almost no flexibility. A Go-playing computer may play the game better than any human, but it can't do anything else. A self-driving car may be a safer driver than a human, but it can't play Go or fix a flat tire."[46] One way to think about the inflexibility and limitations of today's AIs is discussed by Professor Marvin Minsky who explains that "AIs are not resourceful" – they get stuck if you ask them to do something for which they have not been explicitly programmed.[47] When Professor Minsky says that AIs are not resourceful, he means that **"no computer or AI can think outside the box"** and **thinking outside the box** is precisely what characterizes

---

46 *"A Thousand Brains"*, Jeff Hawkins, 'Why there is no AI', page 120.

47 "Introduction to Society of Mind", Marvin Minsky, MIT Open Courseware, MIT course 6.868J The Society of Mind, Fall 2011, published on March 4, 2014, see at about 23:00 into the lecture. https://www.youtube.com/watch?v=-pb3z2w9gDg

invention as an activity.[48, 49] In other words, intelligence is the ability to get 'unstuck' from a problem. Human beings, when stuck, will try alternative strategies for solving a problem that are rooted in a broad range of ways to solve problems.[50, 51] As artificial intelligence engineer François Chollet, explains: "Intelligence is the ability to acquire new skills at tasks for which you have not previously been prepared for. It's not what you know or skills themselves that one already possesses, but how efficiently one can learn new things. You would see intelligence on display in a human being or in an AI creature when the intelligence is presented with a new environment that it has not seen before and for which it is not prepared and it adapts and improvises.[52]

Most of the contemporary attention regarding AI is focused around machine and deep learning neural networks that are performing some type of pattern recognition. As important as pattern recognition is, that one capability alone or in combination doesn't equate to intelligence – or the

---

48 "*The Society of Mind*", Marvin Minsky, Simon and Schuster, New York, 1986, see Chapter 14 'Reformulation', page 141-149

49 "*Lateral Thinking*", Edward de Bono, Harper Perennial, 1973-2015

50 "The Mechanism of the Mind", Edward de Bono, Vermillion, London, 1969-2015.

51 "The Emotion Machine", Marvin Minsky, 2006, Simon and Schuster.

52 "Intelligence is the Ability to Adapt", François Chollet, Lex Fridman podcast, Lex Clips, August 31, 2020. see: https://www.youtube.com/watch?v=jyDFNeRqvMI or for the full length interview, see: "François Chollet: Measures of Intelligence", François Chollet and Lex Fridman, Lex Fridman podcast # 120, August 31, 2010. https://www.youtube.com/watch?v=PUAdj3w3wO4

ability to conceive. Intelligence is more about building different models of the world and includes a) explaining and understanding what we see, b) imagining things we could see but haven't yet, c) problem solving and planning actions to make these things real, d) building new models as we learn more about the world, and e) sharing our models, communicating to others, understanding their models and learning from them and with them.[53] Broad knowledge is a necessary feature of much invention and conception because conception is the connecting of disparate ideas and concepts in new combinations. No computer or AI has broad knowledge of disparate subject areas and no AI possesses the flexibility to independently learn new knowledge concepts and skills which result in the acquisition and accumulation of broad knowledge. Moreover, no AI is resourceful in the sense that it is able to devise alternative problem solving strategies.

3. TODAY'S AIS LACK INDEPENDENT AGENCY

None of today's artificial intelligences possess anything akin to consciousness. Philosophers and cognitive psychologists have been discussing what it means to be conscious for a long time. But for practical purposes, it can be defined as self-awareness and includes knowledge of one's external environment and one's internal world. Consciousness confers on an animal, person or

---

53 "MIT AGI: Building Machines that See, Learn and Think Like People", Josh Tennenbaum, MIT course 6.S099. see at about 4:03 into the lecture. https://www.youtube.com/watch?v=7ROelYvo8f0

also see: "Building Machines that Learn and Think Like People", Lake, Ullman, Tenenbaum & Gershman, Behavioral and Brain Sciences, November 2, 2016, https://arxiv.org/pdf/1604.00289.pdf

perhaps one day, a computer, a sense of ego, a sense of "I". Technically speaking, invention and conception do not necessitate consciousness *per se*. But without consciousness, it is impossible to recognize a problem or to possess the restlessness that motivates human inventors to improve the world or to recognize phenomena that constitute important discoveries. No AI possesses *independent agency*. Related to the idea of consciousness is that the notion of independence. If a person or machine does not independently conceive of an invention, then they are not the originator of the invention, so the attribute of agency and independence are a prerequisites for conception. No AI possesses any kind of independence of any kind or will. No AI can think for itself and no AI is capable of *focusing its own attention on whatever it chooses* from a wide swath of knowledge and input. All of today's AIs implement functionality that is designed by an architect who is a natural person, and it is this natural person who is the 'prime mover' of any result that the AI might generate. Without consciousness and independence there is no agency and without agency, no person or AI would have a motive to invent.

4. TODAY'S AIS LACK THE MOTIVE TO INVENT

No computer system or AI, by itself, is intellectually restless or dissatisfied with the world or by itself, appreciates any problem or a technological problem that exists in the world. None of today's AIs are curious or ambitious. None of today's AIs exhibit the characteristic of perseverance, the desire to improve some aspect of the human condition, or any other personality or character trait which motivates one to invent. No computer has a personal identity, ego, or even knows that it is a computer and that there is a world.

Invention and conception do not just occur randomly; they occur because some motive force has initiated the process of conception. Without that motive energy, the inventive process would not occur – it is an essential element for invention. The TSM test for non-obviousness, while not the only test for non-obviousness, realizes the importance of motive in noting that without a teaching, suggestion, or motivation to combine prior art elements, a new idea lacks obviousness. But the TSM test is just one example of how and why motivation is absolutely essential for invention. Motive energy is the sauce that fuels the synthetic imagination faculty for inventors. Motivation and a burning desire to invent are the reason inventors wrestle with a problem and quite literally dream about their inventions – and none of today's artificial intelligences possess independent motivation because they don't possess agency.

Inventor and author Joseph Rossman discusses the detailed psychological forces at play in motivating an inventor. In "The Psychology of the Inventor", Rossman explains that most of the reasons inventors invent are psychological in nature. Indeed, cognitive psychologists do not have an agreed upon, unified model for explaining these kinds of motivations in humans, and certainly none of these psychological motives for inventing are infused into any of today's AIs. Some of the motives that inventors invent that Rossman discusses are 1) the love and joy of inventing, 2) the desire to improve, 3) financial gain, 4) necessity or need, 5) the desire to achieve, 6) part of the inventor's work, 7) altruism, and 8) laziness.[54] There is no known means to model or

---

[54] '*Motives of Inventors*' in "*The Psychology of the Inventor*" (pp 151-159), Joseph Rossman, The Inventors Publishing Company, Washington, D.C., J W. Stowell Printing Co., Federalsburg, Maryland, 1931. https://babel.hathitrust.org/cgi/pt?id=mdp.39015066018188&view=2up&seq=6

represent any of these psychological characteristics in any computer architecture and so AIs don't possess features akin to these psychological forces that would motivate them to invent. Thus, one of the core elements for invention and conception is *per force* is absent in the technology, and lacking a motivation to invent, there can be no invention.

5. AIS DO NOT POSSESS KNOWLEDGE, UNDERSTAND MEANING OR MAKE MODELS

"Today's deep learning networks don't possess knowledge. A Go-playing computer does not know that Go is a game. It doesn't know the history of the game (moves). It doesn't know if it is playing against a human or a computer, or what a 'computer' and 'human' mean. Similarly, a deep learning network that labels images may look at an image and say it is a 'cat', but the computer has limited knowledge of cats. It doesn't know that cats are animals, or that they have tails, legs, and lungs. It doesn't know about cat people versus dog people, or that cats purr and shed fur. All the deep learning network does is determine that the new image is similar to previously seen images were labeled 'cat'. There is no knowledge of cats in the deep learning network."[55] Deep neural nets or other kinds of AI or machine learning don't attach any meaning to what they have learned. Computers and (narrow) AI systems don't understand anything. Knowledge is just the name for what we have learned about the world. Your knowledge is the model of the world that resides in your neocortex. But there is no knowledge per se in any AI's neural network. Training a network assigns weight and bias parameter values in artificial

---

55 'A Thousand Brains", Jeff Hawkins, 'Why there is no "I" in AI, page 123.

neurons, it doesn't confer onto the net contextual knowledge about the objects whose parameter values are set. Inventions are ideas, ideas are abstract and therefore inventions are abstractions. Inherent in conception is the ability to process abstract ideas. Today's state-of-the-art AI systems do not yet possess the independent capability to process any kind of abstract idea or thought because there is no known data structure that can model ideas or concepts.

Abstract reasoning, reasoning by analogy, reasoning by metaphor and related ideas are sometimes spoken of in the Academy, but techniques to incorporate these into actual working AI systems have not advanced to the point that they have been implemented in any kind of non-trivial AI, and certainly not in an AGI. AIs don't have ideas and don't process abstract thoughts. The capability to conceive requires the intelligence to process abstract thoughts, and abstract thought requires knowledge, specifically the possession of contextual knowledge. AIs do not possess contextual knowledge.

Intelligence is characterized by the ability to learn a model of the world. This model is based on understanding knowledge at many levels of meaning and contextual knowledge. These models of

the world are then used for prediction about our environment, to guide behavior and for planning.[56, 57]

Inventive conception requires the ability reason about knowledge and one of the goals of artificial intelligence is to implement this same ability in computers. Yet no one knows how higher level knowledge is represented in the brain.[58] Computers and AIs don't model or represent higher level knowledge. Computer technology is unable to represent simple knowledge – the kinds that computer science students learn about in a data structures course or in a course on relational databases, but this is not the kind of contextual knowledge that is necessary to perform mental feats that we think of when we think of intelligence.

This lack of our knowledge for understanding the human brain might not seem to be a prerequisite to architecting an artificial intelligence, but since our only reference system for

---

56 "Jeff Hawkins: The Thousand Brains Theory of Intelligence", Lex Fridman and Jeff Hawkins, Lex Fridman Podcast # 208, August 8, 2021. see at about 14:30 into the interview. https://www.youtube.com/watch?v=Z1KwkpTUbkg

57 "A Thousand Brains", Jeffrey Hawkins, 2021, Basic Books. See especially Part 1 "A New Understanding of the Brain", page 1-112.

58 "Introduction to Society of Mind", Marvin Minsky, MIT Open Courseware, MIT course 6.868J The Society of Mind, Fall 2011, published on March 4, 2014, see at approximately 39:15 into the lecture. https://www.youtube.com/watch?v=-pb3z2w9gDg

creating an artificial intelligence is in understanding human intelligence, many engineers, psychologists and neuroscientists believe that understanding the brain is the touchstone for developing an AI.

For example, the idea of neural networks was first developed by McCulloch and Pitts in response to their understanding of how natural neurons are arranged. Jeff Hawkins and his team at Numenta developed the theory and application of reference frames which may be on the verge of advancing the art in part, as consequence of Vernon Mountcastle's observations about the relative uniformity and ubiquity of cortical columns along with and inspired by the recognition of importance grid cells and place cells in the cortex.[59,60] The dramatic success of today's image processing technology and convolution neural networks is attributable to the pioneering work of Hubel and Wiesel.

Since AIs can't represent higher levels of knowledge, reason abstractly or learn models of the world no AI exists that possesses either a database or model of theoretical and practical science

---

59 "Have we Missed Half of What the Neocortex Does? Allocentric Location as the Basis of Perception", Jeff Hawkins, MIT Center for Brains, Minds and Machines, December 15, 2017 https://cbmm.mit.edu/video/have-we-missed-half-what-neocortex-does-allocentric-location-basis-perception

60 "*Intelligence*", Jeff Hawkins, 2004, Times Books

and engineering, an understanding of, or ability to process these ideas. Though there are many databases of prior art along with different systems for searching that prior art, no AI model or system is capable of *understanding the ideas expressed in that prior art.* So too, no AI or model is able to process these different types of knowledge that natural persons integrate automatically and transparently.

AIs are technically capable of consuming vast quantities of data and then by using shrewd algorithms and architecture, processing the data and producing very ingenious results. IBM's Watson defeated Jeopardy using this type of technology. These applications can indisputably, be useful. But these systems do not understand anything at all about the data they are processing. In effect, such an AI might be very useful at finding prior art, but, at this juncture in technology, they don't understand what they are finding. Actual inventors possess the ability to digest and understand the meaning of the content of publications in patent and non-patent literature. Likewise, No current AI possesses commonsense knowledge or the other means of intelligent thought that most people have and take for granted. Narrow AIs cannot learn and apply principles or combine logical reasoning with pattern recognition; nor can they learn from only a few examples: they typically require massive data as input for their training.

None of today's AIs can tell you why you can use a string to pull, but not to push; why people go indoors when it rains; why things fall if not supported; why it annoys people when you interrupt them; why it is hard to stay awake when you are bored; why no one else can tell what you're

thinking; or why it's hard to hear a speech in a noisy place.[61] These are all example of simple common sense tasks that nearly every one of us possesses and doesn't even think about. Conception requires thousands (tens, hundreds of thousands?) of these types of understanding blocks, but none of today's AIs implement even one of them.

The ability to synthesize new combinations of existing elements in new and non-obvious ways constitutes the bedrock of invention. The intelligence required to synthesize new combinations, requires understanding meaning, contextual knowledge, abstract thought, the ability to create new models in one's mind, commonsense reasoning, understanding science and engineering principles and the ability to understand prior art and there is no AI that can achieve any of these things right now.

None of today's AIs are capable of representing higher levels of knowledge or understanding ideas and concepts. No AI is capable of understanding contextual meaning in any kind of intelligent fashion and no AI is capable of learning or building a model of the world - abilities and attributes that are essential to the ability to conceive.

6. TODAY'S AIS ARE INCAPABLE OF APPRECIATING OR RECOGNIZING ANY PROBLEM

No natural person or AI creature can solve a technological or any kind of problem without first understanding the nature of the problem. Invention is, to a very large degree, the process and

---

61 *"Introduction to Society of Mind"*, Marvin Minsky, MIT Open Courseware, MIT course 6.868J The Society of Mind, Fall 2011, published on March 4, 2014, see at about 1:02:09 into the lecture. https://www.youtube.com/watch?v=-pb3z2w9gDg

result of solving technological problems. The cognitive process for how humans apply their intelligence to recognizing problems is somewhat of a mystery, but at a high level, it involves observation of the environment, an understanding of high level concepts, spatial reasoning and common sense. These elements of intelligence are necessary whether the inventor is recognizing an existing problem or if they are first discerning a problem that has been undiscovered. Even in the case where an invention consists of discovery, the requisite intelligence is the ability to observe the universe using a broad range of sensory inputs and to be able to process those many inputs at many levels of abstraction.

Many of these intelligences are correlated with the guidelines for assessing patentability and in the case law as for example in MPEP §2144.02 'Reliance on Scientific Theory' and MPEP §2144.03 'Reliance on Common Knowledge in the Art or "Well Known" Prior Art'. These constitute knowledge bases and intelligences on which an inventor develops an understanding of problems and conceives of solutions.

The ability to appreciate a problem is entrenched in the process of invention and in patent law: "[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified." This is part of the 'subject matter as a whole' which should *always be considered* in determining the obviousness of an invention under 35 U.S.C. § 103."[62] (emphasis added).

---

62 MPEP § 2141.02, "III - Discovering Source/Cause of a Problem is part of 'As A Whole' Inquiry"

The principle that recognizing a problem is an inherent element of patentability is expressed in the Federal Circuit's opinion in in re Omeprazole Patent Litigation, 536 F.3d 1361, 87 USPQ2d 1865 (Fed.Cir. 2008)[63]

"The Federal Circuit affirmed the district court's decision that the claimed invention was not obvious. Even though subcoatings for enteric drug formulation were known, and there was no evidence of undue technical hurdles or lack of a reasonable expectation of success, the formulation was nevertheless not obvious because the flaws in the prior art formulation that had prompted the modification had not been recognized. Thus there would have been no reason to modify the initial formulation, even though the modification could have been done. Moreover, a person of skill in the art likely would have chosen a different modification even if they had recognized the problem."

"Recognizing flaws in the prior art formulation" is identical to 'recognizing the problem in the prior art formulation'. This case teaches that recognizing a problem is sufficient for an invention to be deemed non-obvious, and obviousness, is one of, if not the most, complex patentability issues.

There are many examples where the case law teaches the importance of recognizing and understanding the problem to be solved in an invention. Nearly all invention constitutes solving a

---

[63] see: MPEP 2143 "Examples of Basic Requirements of a Prima Facie Case of Obviousness", I "Exemplary Rationales", A. "Combining Prior Art Elements According to Known Methods To Yield Predictable Results", Example 3. https://www.uspto.gov/web/offices/pac/mpep/s2143.html

technological problem using a technological solution. If one enters the text "problem" in a search field in chapter 21 of the MPEP, 162 citations appear and almost each one of these citations references case law on how or why a given case is or is not patent eligible as a consequence of whether or not the disclosure articulated if and whether the invention solved a technological problem. *If an inventor lacks the ability to recognize a technological problem, how is that inventor able to then develop an unconventional technical solution?*

In the European Patent Office and WIPO as well as other jurisdictions, addressing the technological problem and technological solution in the disclosure is an essential feature of intellectual property law. The statue on inventive step is interpreted to employ the problem-solution framework.[64]. PCT Part G –"Substantive Requirements of the Application" are described under the section "Inventive Step"[65]

> "5. Problem-solution approach: In order to render the assessment of inventive step more objective, the EPO applies the so-called "problem-solution approach" which should be applied consistently..." The citations used to support this by the EPO are in the section of law of obviousness outlined in the Patent Cooperation Treaty.[66]

---

64 "The European Patent Convention", Part II – Substantive patent law, Chapter 1 – Patentability, Article 56 Inventive Step. https://www.epo.org/law-practice/legal-texts/html/epc/2016/e/ar56.html

65 *"Guidelines for Search and Examination at the EPO as PCT Authority"*, PCT Part G", https://www.epo.org/law-practice/legal-texts/html/guidelinespct/e/g_vii_5.htm

66 *"Patent Cooperation Treaty (PCT), World Intellectual Property Organization"*, https://www.wipo.int/export/sites/www/pct/en/texts/pdf/ispe.pdf

The problem and solution approach constitutes a central aspect of how patent law is applied in case law in the European Union:

"2. Problem and solution approach: The 'problem and solution approach' is regularly applied by the departments of the EPO in the course of deciding whether or not claimed subject-matter fulfils the requirements of Art. 56 EPC."[67]

Problem recognition and conception demands intelligences that no AI possesses and appreciating a problem is the first step of conception. Absent appreciating a problem, there is no invention.

7. TODAY'S AIS ARE INCAPABLE OF EXPLAINING HOW THEY ARRIVED AT A CONCLUSION

No AI is able to provide an explanation for how it reaches a conclusion.[68] This lack of ability to explain how and why it performs as it does is one tell that AIs, no matter how impressive or

---

GL/ISPE 13.08, GL/ISPE A13.08.1-GL/ISPE A13.08.9

67 "Case Law of the Boards of Appeal; I PATENTABILITY, D. Inventive step, 2. Problem Solution approach" https://www.epo.org/law-practice/legal-texts/html/caselaw/2019/e/clr_i_d_2.htm

68 "A deep-learning system doesn't have any explanatory power," ... "A black box cannot investigate cause" ... "the more powerful the deep-learning system becomes, the more opaque it can become. As more features are extracted, the diagnosis becomes increasingly accurate. Why these features were extracted out of millions of other features, however, remains an unanswerable question." --- Geoffrey Hinton, see: *"A.I. versus M.D.: What happens when diagnosis is automated?"*(online title),"The algorithm will see you now. (print title) Siddhartha Mukherjee, March 27, 2017, (April 3, 2017 issue), The New Yorker, https://www.newyorker.com/magazine/2017/04/03/ai-versus-md

capable, are (today) unable to appreciate meaning or understand the ideas upon which the AI is acting, The lack of ability to explain how and why it generates a result constitutes further evidence that the AI doesn't possess the requisite intelligence for conception. The fact that AIs can't explain anything is not an insignificant artifact – it is a clear indication that the inference engine is merely an algorithm without the requisite attributes to be regarded as an inventor. In contrast, an actual inventor is fully capable of explaining how and why he or she made a discovery or selected a certain element to use in a solution architecture or why he or she made certain design decisions. The reason that AIs are not capable of explaining how and why they reach a conclusion is that they lack the ability to learn models about the world, process abstract concepts, do not actually possess any knowledge, and lack commonsense reasoning – as explained above.[69]

8. NARROW AIS DO NOT CONCEIVE

None of today's AIs conceive because 1) they do not have a mind or anything that could be considered to be a mind, 2) they do not form ideas, 3) they are not in possession of any inventive concept and 4) no AI can explain its inventive concepts.

---

69 "*Explain Yourself - A Primer on ML Interpretability & Explainability*", Nirmal Sobha Kartha, The Gradient, 2021. https://thegradient.pub/explain-yourself/

9. TODAY'S AIS FAIL AT PRIMA FACIE APPLICATION OF BASIC ELIGIBILITY STATUTE

Every computer has both input and output. This is as true of machine learning and neural network inventions as it is of conventionally programmed computers. The input for neural networks are called features and these constitute the first input layer in a neural network. These features are processed by the network which then generates an output. One of the reasons that all AIs are narrow is that no single AI is able to process general knowledge and accept general input. Every neural network-based AI's inputs are carefully architected to provide necessary input for the network to be able to process that input. The input features are highly tailored. There is no network in existence that doesn't have a) a carefully developed input layer which is architected by human engineer and b) operates without carefully curated data that is used as the fuel for the network. 35 USC §101 reads: "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." As described above, invention in general and AI machine learning invention in particular requires the steps articulated above in "Correlating Prerequisite Intelligence for Invention and Conception". As noted, AI machine learning type inventions are all two stage affairs, *supra* in "The True Inventor". There is no AI that has ever been devised or implemented that invents or conceives the structure, function and/or steps that any AI implements a solution architecture which it uses to produce its output. It is evident on its face, therefore, that no AI that is or was could rightly be regarded as an inventor or conceiver because the true inventor/conceiver is the designer and engineer who architects the activities in phase 1. It should be emphasized that this

rationale does not disqualify an AI as inventor because they are not natural persons, but because they do not invent or conceive in the straightforward meaning of the word.

10. NEURAL NETWORK-BASED ALGORITHMS ARE STILL JUST ALGORITHMS

Machine learning neural networks typically operate to classify or recognize patterns and then use the result of pattern recognition to produce sometimes ingenious results. We humans then sometimes marvel at the computer's ability to achieve these results and occasionally erroneously anthropomorphize human intelligence into the machine. Those who don't understand the technology think: "It requires intelligence for me (a human) recognize this pattern, so, if the computer can recognize that pattern, the computer must also be intelligent." It is true that a human can recognize patterns and that a human is intelligent, but the reason that an neural network can recognize patterns is not because the AI itself is intelligent, but because it was trained with a lot of data that is used to generate an algorithm.

There are differences in the way that algorithms used in conventional software and in AI-machine learning are generated. But they are both just algorithms, and function in the same way. No one would characterize an algorithm that solves the Pythagorean theorem or a quadratic equation – as intelligent despite the fact that these algorithms are useful, because these types of algorithms lack markers of intelligence. Neural network algorithms are identical in this regard. The difference between conventional algorithms and neural network-based algorithms is that conventional algorithms are explicitly designed whereas in neural network algorithms the parameter values are determined in training cycles. Both algorithms accept user input and produce output. Both conventional algorithms and neural network-based operated exactly the

same way every single time that they are executed. If a software engineer writes software to add two numbers, the algorithm will do exactly the same thing every single time, no matter how many times that the algorithm is used. The same is true with respect to a neural network-based algorithm. The neural network algorithm(s) used in an inference engine do not exercise independent judgment or discretion. Both types of algorithms are generally compiled and executed and processed on von Neumann architectures. They operate as machines instructing their semiconductor circuits to open and close – exactly like conventional algorithms.

A computer is a universal computing machine. Neither the computer itself nor AIs fundamentally change how they operate. Neither computers nor AIs evolve or replicate. The physical properties of a computer is such that there are certain things that it can't do and computers don't do anything by themselves." Computers don't have wills and don't decide to do anything that they are not programmed to do. AIs are machines that operate according to the laws of physics and engineering. AIs are cleverly designed machines, but machines nonetheless. Algorithms themselves do not have any intelligence or conceive

When a machine produces a result, no one believes that the machine itself invented or conceived of anything because the machine executed that which it was designed to do. Algorithms are the instructions that direct a machine how to behave and they don't invent or conceive either because algorithms are non-autonomous products of invention and conception.

11. PRODUCTS AND OUTPUTS OF NEURAL NETWORKS ARE DE FACTO OBVIOUS

Conception of a patentable invention requires not only the markers of intelligence but a threshold of creativity, that exceeds that of PHOSITA. This criterion is at the heart of the determination of

non-obviousness. Only an AGI (or a natural person) could be deemed capable of possessing these prerequisite elements of conception.

An AI machine learning neural network inference engine is a tuned algorithm that performs exactly as any other computing machine. The basic idea of obviousness is captured in whether an invention is unexpected or unpredictable. Once the algorithm is implemented and tuned to certain kinds of input data. the algorithm's output necessarily flows from the algorithm itself. But no product of any neural network or other AI is unexpected or unpredictable because given input X, and neural network inference engine Y, the AI will always produce the exact same result Z. The product of an AI is *per se* obvious because there is simply nothing that is unexpected or unpredictable about the product at all given the inputs and the algorithm. Given the work that is performed in phase 1, there is an overwhelming expectation and likelihood of success during the inference process in phase 2.[70]

The novelty and non-obviousness that emanate from neural networks derive from the motive force of the those natural persons who architected and reduced to practice the AI in phase 1. These architects and engineers surely deserve to be awarded a patent on their AI inventions if all of the other conditions for patentability are met. We see that AI designers and engineers – and their employers - routinely apply for, prosecute and receive tens of thousands of software, hardware and AI-related inventions by patent offices in jurisdictions all over the world, and rightly so. The allowance of AI inventions occurs because it is recognized by the inventors and

---

[70] Phase 1 and phase 2 of neural network development and deployment are described above in "Correlating Prerequisite Intelligence for Invention and Conception".

the patent offices that the creative force behind these inventions are the natural persons who apply for patents. In other words, different kinds of AIs are rightly patent eligible, and should remain so. However, the products of an AI are results that are eminently obvious given the AI and its input.

J. INNUMERABLE SUBSTANTIVE PROBLEMS WITH DABUS AS AN INVENTOR

1. UNDER THE COVERS OF DABUS

The beautiful thing about patents is that they include built-in enablement and written description so that each invention is (or should be) fully described in in exchange for participating in the patent bargain. Dr. Thaler, asserts his Memorandum that the '350 and '532 inventions were generated by DABUS as described in 3 of his prior inventions: 1) DAGUI, 5,659,666, 2) DABUS # 1, 7,454,388 B2; and 3) DABUS # 2, 2015/0379394 A1[71]. DABUS # 1 and DABUS # 2 are improvements over DAGUI and use DAGUI as their core technology. Presented here are 3 quotations (emphasis/underlining added) from Dr. Thaler's disclosures in the DAGUI and DABUS inventions. These snippets are portals into how the DABUS computer program operates and illustrate that DABUS doesn't operate by conception, but by performing operations on parametric variables in a computer program. These variables are not ideas or concepts, they are just numbers.

---

[71] "Memorandum In Support Of Motion for Summary Judgment", "Statement of Undisputed Material Facts" page 4-5, , # 10, Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

- **Specification Snippet # 1**

... "In contrast (to the prior art) , the present device autonomously monitors the output of such a network and selects emergent concepts on the basis of some predetermined criteria established within the policing or patrolling neural· network. Such concepts may include producing music or musical themes for some purpose, or for designing some device such as a coffee mug, or producing a process planning operation, or solving a problem, and for many other applications some of which will be described..."[72]

Snippet # 1 shows that DAGUI/DABUS is monitoring output of a neural network, and selects 'emergent concepts'[73] on the basis of predetermined criteria. DAGUI/DABUS doesn't determine which criteria to use by itself, the 'predetermined criteria' is programmed into the computer by a software engineer. This means that DABUS itself isn't deciding when to do the policing or which criteria to apply. DABUS is merely executing instructions that are programmed into it by its human inventor.

- **Specification Snippet # 2**

... "The key to making the transition from the ordinary to the novel is achieved by the control over the network degradation and the ability to relax or perturb certain network parameters from their trained-in values. Thus the present device provides a way to design around the ordinary or

---

72 "Device for the Autonomous Generation of Useful Information", Stephen Thaler U.S. Patent # 5,659,666, "Discussion of the Prior Art", (*column # 2, lines 8-17)*

73 'emergent concepts' is a descriptive term used by inventor Dr. Stephen Thaler, not a term of art within either computer or software engineering.

the near ordinary and to create new designs in much the same manner as a creative designer would do, unlimited by certain constraints. As a result of the introduction of various forms of perturbations to the inputs, internal activations, weights and biases such known systems may control a process or create an object or design. The information thus produced with the present device may be stored for later use to control a process or the like and/or used in its own autonomous decisions to modify the output or outputs that have been produced in some desired fashion. Thus the present system provides another tool, and a very broad based tool, for doing design or creative work using a machine that includes the two elements discussed above... "[74] *Snippet # 2* shows that DAGUI/DABUS operates because the computer program relaxes or perturbs certain network parameters from their trained values. This means that DAGUI/DABUS is trained and the parameter variables in its trained data are increased or decreased according to some programmed criteria. DABUS doesn't' decide which parameter variables to modify on its own, that is specifically controlled and programmed into it by a human software engineer.

- **Specification Snippet # 3**

... "In any of the above modes or juxtapositions any combination of perturbing factors can be used to generate novel concepts within the IE. Such perturbations may combine different factors such as (a) weights, (b) biases, (c) activations, (d) external input signals, (e) internal input signals to any given unit within the network, or (f) internal output signals from any given unit within the

---

74 "Device for the Autonomous Generation of Useful Information", Stephen Thaler U.S. Patent # 5,659,666, "Discussion of the Prior Art", *(column # 2, lines 33-50)*

network. In like manner the parameters a-f may be perturbed by various means such as by (1) successively setting their values to some constant value such as zero; (2) successively adding some random number as obtained with a random number table to their original values; (3) successively changing their values by replacing them with random numbers obtained from a random number table; (4) multiplying their values by a time-dependent factor usually with some decay constant; (5) successively adding positive and negative random numbers obtained through a random number table to allow these parameters to perform a random walk about the original values; (6) adding numbers which obey certain statistical frequency distributions of the form where the probability of choosing such a number obeys a probability function; (7) adding numbers which obey set time-dependent statistical distributions; and/or (8) progressively multiplying any of the above factors by some gradually increasing amplitude factor so as to smoothly transition the IE from its original constrained condition, implicit within its training, to progressively relax constraints as the weights and biases stray from their training values. It has been found that enhanced results may be obtained by specifically applying such perturbating influences to neurons which have not been fully recruited into the network's mapping or trig.... "[75]

Snippet # 3 describes some of ways that control over DABUS' parameters is determined, *vis a vis* how to relax or perturb the variables that are received from a neural network. (a) lists

---

75 "Device for the Autonomous Generation of Useful Information", Stephen Thaler U.S. Patent # 5,659,666, "Discussion of the Prior Art", (*column # 6, lines 16-46)*

weights, biases and activations – the main values in artificial neurons. These values are numbers, not ideas or concepts. (3) shows that these numbers in neural networks are manipulated by adding a random number to it, (4) does a similar operation but multiplies the number, and so forth. The entire specification describes this in more detail, but the exemplary text from these snippets is enough for the reader to see that DABUS operates by implementing specific software engineering techniques for varying the values in a neural network using well understood various methods.

Nothing described in any of these snippets or in any of the DAGUI or DABUS patents is remotely akin to sentience, autonomy, consciousness or conception. No one really knows how natural persons think or conceive or how our synthetic imagination operates - but we don't do it by "successively adding some random number as obtained with a random number table to their original values" (snippet # 3, # (2)" or any of the other specific methods cited in any of the DABUS family of patents. When the DABUS inventions are evaluated as a whole, they don't come close to rising to the level of a 'conceiver'. Conception is performed using the sum total of the types of intelligence described above in "Prerequisite Markers of Intelligence Essential for Conception" using ideas, memory, synthetic imagination, knowledge of prior art, commonsense reasoning and all the rest. DABUS is a computer program, not a thinking, conceiving intelligence. The general techniques implemented in DABUS are well understood, routine and conventional within the art of software engineering and computer programming.

no evidence of conception by DABUS.

The plaintiff has not established that DABUS conceived of any invention. *Coleman v. Dines 754 F.2d at 359, 224 USPQ at 862* makes it clear that conception must be established through corroboration:

> "Because it is a mental act, courts require corroborating evidence of a contemporaneous disclosure that would enable one skilled in the art to make the invention.... Thus, the test for conception is whether the inventor had an idea that was definite and permanent enough that one skilled in the art could understand the invention; the inventor must prove his conception by corroborating evidence, preferably by showing a contemporaneous disclosure."

There has not been any showing that DABUS ever wrote down its inventive idea(s) or explained it in person to anyone. There is no showing on the record that DABUS corroborated its conception in any manner. The plaintiff has not made any showing that DABUS "had an idea that was definite and permanent enough that one skilled in the art could understand the invention". The reason for this is plain enough: DABUS does not have ideas. Natural person have ideas; computers process data.

2. *IS DABUS REALLY CONSCIOUS, SENTIENT AND IMAGINATIVE?*

On or around July 15, 2020 Dr. Thaler presented his thoughts about DABUS in a lecture for the *American Intellectual Property Law Association* (*"DABUS Can Invent"*).[76] Throughout the lecture,

---

76 "Dr. Stephen Thaler Speaks On How DABUS Can Invent", Benita Rose Mathew, July 15, 2020, American Intellectual Property Law Association (AIPLA), see: Stephen Thaler's website:The

Dr. Thaler continually characterizes DABUS as being endowed with imagination, the capability to produce and process ideas, having consciousness and having the capability to invent.

It is true that all of machine learning and neural network technologies are inspired by neuroscience.[77] Nonetheless, of the tens of thousands of engineers and computer scientists in industry and academia, no one else regards any computer system or AI as capable or endowed with these attributes because there is a manifest lack of any correlating evidence to this effect.

Dr. Thaler's lecture is replete with references to neuroscience and cognitive science. It is not unusual in the AI community to use the brain as metaphor. But Dr. Thaler doesn't merely use the brain as metaphor, he describes the operation and processing of DABUS in terms of neuroscience. This is unusual in the extreme. Computer engineers and scientists use an assortment of accepted tools in the art to describe the operation of AIs and software. For one

---

Artificial Inventor Project (artificialinventor.com), https://artificialinventor.com/467-2/ links to: https://register.gotowebinar.com/recording/2377583251273917453

[77] Warren McCulloch and Walter Pitts are widely recognized as the visionaries and founders of modern neural network theory. "A Logical Calculus of Ideas Immanent in Nervous Activity", Warren S. McCulloch and Walter Pitts, The Bulletin of Mathematical Biophysics, Volume 5, pages 115–133 (December, 1943)

https://link.springer.com/article/10.1007/BF02478259 or https://www.cs.cmu.edu/~./epxing/Class/10715/reading/McCulloch.and.Pitts.pdf

example of a typical presentation of AI, see Ramin Hasani's lecture: "Liquid Neural Networks" [78], but such lectures are posted all over the internet and YouTube.

Thaler in describing DABUS says DABUS' 'hot button secretes neurotransmitters like adrenaline, nor-adrenaline and serotonin" when he is describing the operation of DABUS - a computer program.[79] One cannot credibly describe a computer program that runs on silicon semiconductor integrated circuits in biological terms like this. Thaler isn't saying "DABUS does what biological systems do...". He isn't using a metaphor. Thaler is literally describing a computer in biological terms.[80] Thaler says that "DABUS secretes... neurotransmitters" when he is describing its function and structure.[81] Credible computer engineers and computer scientists would not describe the function and structure of an AI or computer program by saying that it releases neurotransmitters. Thaler describes the operation of DABUS in terms of how he thinks the human limbic system and thalamus physiology function. There is no question that neuroscientists have an inkling of how some of these structures work, but only an inkling. It is way far from any kind of scientific consensus to believe that the 'thalamo-cortical neurons

---

78 *"Liquid Neural Networks"*, Ramin Hasani and Daniella Rus, Distributed Robotics Lab, CSAIL and CBMM, MIT, October 5, 2021, see. Professor Rus' comments at approximately 2:00 into the lecture. https://www.youtube.com/watch?v=IlliqYiRhMU

79 *"DABUS Can Invent"*, see at approximately 43:44 into the lecture.

80 *"DABUS Can Invent"*, see at approximately 32:41 into the lecture.

81 *"DABUS Can Invent"*, see at approximately 33:47 into the lecture.

(TCNs) function the way Thaler posits in his lecture.[82] Dr. Thaler is stating categorically that DABUS imagines, creates memory, and synthesizes ideas in terms of human anatomy of physiology which are only his personal beliefs about how the brain works. There is no substantial scientific evidence to support his theories. Not only is there no scientific consensus on the subject, the only thing on which there is scientific consensus is that we don't know how the brain works to produce consciousness, sentience or imagination.

Dr. Thaler describes DABUS as capable of generating of novel ideas, but doesn't ever explain what a novel idea is in terms of how features to the input layer of the network are transformed into an idea. The concept of 'idea' is not a term of art that is used in artificial intelligence or computer science. "Idea" is a term of art that is used in cognitive science, so if a computer engineer uses that term to describe the product of a neural network, it is appropriate and necessary to explain how the input feature is transformed into a so-called 'idea', and to explain what an idea data structure looks like. Computer scientists and engineers want to see implementation details for data structures, and although Thaler describes autoencoders and other networks in DABUS, he doesn't correlate 'idea', imagination, consciousness or sentience with these data structures. Much of Dr. Thaler's lecture mixes in to a very large degree of marketing hype instead of describing function and structure.

---

82 *"DABUS Can Invent"*, see at approximately 37:08 into the lecture.

The stuff of consciousness, sentience, imagination, has been discussed by philosophers, psychologists and thinking men and women for thousands of years.. Some important thinkers include: Aristotle, Augustine, Baruch Spinoza, Immanuel Kant, David Hume, Francis Galton, William James, Sigmond Freud, John B. Watson, Norbert Weiner, Warren McCulloch, B. F. Skinner, J.C. R. Licklider, Claude Shannon, Allen Newell, Seymour Papert, Marvin Minsky, Ivan Pavlov, Wilhelm Fliess, Frederic Barlett, Emil Post, John von Neumann, Alan Turing, Herbert Simon, George Miller, John McCarthy, Christoff Koch, and many others.[83] It isn't that Dr. Thaler is certainly entitled to his opinion about neuroscience and cognitive science; of course he is entitled to his own theories. One glaring problem is that Dr. Thaler describes DABUS as actually performing computer processing tasks as neurophysiological and cognitive psychology operations that comport with terms of art in those fields, not in computer science. This is a great flaw and a signpost of intellectual grandiosity and arrogance that far exceeds marketing hype. When marketing hype is used to describe engineering systems credibility is forfeited. No one understand consciousness or sentience or imagination – at least not yet. The best brain scientists in the world still don't understand how the brain works well enough to characterize these mental attributes. It is true that many thought leaders in AI converse about these phenomena because it

---

83 "Society of Mind", Marvin Minsky, 'Introduction to Society of Mind', MIT Open Courseware, MIT 6.868J The Society of Mind, Fall 2011, published March 4, 2011. See at about 7:51 into the lecture. https://www.youtube.com/watch?v=-pb3z2w9gDg

is only by open and honest discussion that scientists and engineers hope to one day to impart these attributes into and onto computer systems. But there is no settled agreement on any of it, even among the top scientists of our age. More importantly, no computer system including DABUS is conscious or sentient so it is swagger to describe DABUS as having those qualities. Except for Dr. Thaler, no reputable AI engineer, computer scientist, cognitive scientist or neuroscientist thinks that anyone on the planet truly understands consciousness, sentience, intelligence, imagination, a calming effect or the anatomy and physiology of the brain well enough to be able to confer any of it onto any AI. No other computer engineer or scientist claims to have replicated consciousness, sentience or imagination into or onto a computer system or recognized Thaler for having done so with DABUS.

Dr. Thaler indicates in his lecture that DABUS is capable of generating output in a natural language he calls "Pigeon Language", but doesn't describe pigeon language in his lecture or in any of the DABUS family-of-patents.[84] If pigeon language is the means by which DABUS explains itself, the public needs more to go on that just Dr. Thaler's claim that DABUS explains itself using it.

Thaler's first DAGUI patent was issued in 1994, and has been embellished and improved in subsequent DABUS patents. Dr. Thaler's work has been around for a long time. In the 6 years since the 2015 DABUS patent was published, virtually no one in the AI/machine learning

---

84 *"DABUS Can Invent"*, see at approximately 42:55 into the lecture.

community has recognized DABUS as having made an important contribution to the field. The AI field moves at lightning speed. For example when Deep Mind defeated Lee Sedol in 2016 at the world Go championship, it made instant headlines, and the gurus at Deep Mind were instantly and universally recognized in the AI community as having contributed extraordinary innovation to the art. It is therefore instructive to ask: Why has Dr. Thaler abjectly failed to convince the flourishing and robust AI and machine learning community that he alone has created artificial consciousness and endowed AIs with the ability to artificially invent?

If Dr. Thaler's DABUS is the first computer program to exhibit consciousness, sentience, and imagination, that would be extraordinary. Wouldn't he have published these breakthroughs in peer-reviewed technical journals such as Science and Nature or at least the leading artificial intelligence and machine learning journals?[85]

In Thaler's own words, DABUS is a narrow computer system[86] and requires human beings to connect the output of one neural network in the DABUS system to the input of other neural networks in the DABUS system.[87]

---

85 For example, see some of the publications by the scientists at Deep MInd and where they have published their work. https://deepmind.com/research

86 *"DABUS Can Invent"*, see at approximately 14:13 and 20:11 into the lecture.

87 *"DABUS Can Invent"*, see at approximately 20:22 into the lecture.

In Thaler's own words, DABUS has no idea what the problem is that it is trying to solve.[88]

And so we return to some core ideas: by Dr. Thaler's own words, Thaler claims that DABUS is either an AGI or on the cusp of being an AGI, but it speaks in some kind of pigeon language that no one but Thaler understands, and Thaler has not disclosed in any of his patents or lectures how the DABUS systems are trained or what data has been used to train the systems, despite claiming in his lawsuit against the USPTO that no specialized dataset was used in DABUS' training. This is all fantastic and stretches the credibility of his claims. If DABUS is not conscious, is not sentient, and cannot actually imagine ideas, then it is a computer program and nothing more.

There is a vast difference between how humans generate ideas and what Dr. Thaler is doing with DABUS. Though we don't know exactly, natural persons call on our memory of our knowledge, which is thought to be represented in the connections between our neurons. We apply concentration, focus to these ideas and apply critical reasoning toward solving one or more problems and generate ideas. Computers and DABUS don't generate ideas in this fashion. DABUS processes data just like Dr. Thaler describes in his patents.

While computers have memory, that memory is both persisted and processed as specific data structures. Dr. Thaler speaks of data in DABUS without describing the so called 'idea's' data

---

88 *"DABUS Can Invent"*, see at approximately 14:15 into the lecture.

structure but by referring to it as an idea in the language of neuroscience and cognitive science which is not the parlance of computer scientists. This may be one of the reasons that those in the art have not been able to support DABUS: It's not clear how data is processed from the beginning to the end of the DABUS pipeline and that raises many questions and suspicions. If Dr. Thaler and his legal team are seeking for the world (USA, UK, Europe, Israel, South Africa, Australia, as well as some jurisdictions in Asia) to change how they designate inventors and that DABUS is capable of invention, he should be extremely open and transparent about the mechanism of the system so that all can assess his system based on the engineering and scientific truths, not marketing terminology and wishful biological analogy.

3. PLAINTIFF'S MINDSET DISPENSES WITH THE ACCEPTED CRITERION OF CONCEPTION

The plaintiff regards the products of a computer program as the fruits of conception by equating 'generating patentable output' to the products of invention.[89].

---

89 "Complaint for Declaratory and Injunctive Relieve", page 1, 61, "Nature of Action", # 1, Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

The plaintiff has asserted that the DABUS family of inventions thinks like a human but has also acknowledged that we don't know exactly how the human mind and nervous operate in every detail.[90]

The plaintiff further stated that Stephen Thaler did not contribute to the conception of the invention because he did not contribute to the mental part of the inventive act.[91]

The plaintiff has argued that computer processing is equivalent to conception in the human mind, and that just because computer processing is 'different' doesn't mean that it's not just a different form of conception.[92]

---

90 "Complaint for Declaratory and Injunctive Relieve", page 13, 60, "Nature of Action", # 1, Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

91 "Plaintiff's Memorandum In Support Of Motion for Summary Judgment", page 5, 11, "Statement of Undisputed Material Facts", Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

92 "Complaint for Declaratory and Injunctive Relieve", page 13, 60, "Nature of Action", # 1, Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

Based on this, the plaintiff asserts that conception should not play any role in the determination of patentability. The plaintiff doesn't think that conception is any kind of legitimate criterion on which invention or patentability should rely.[93]

One reason that DABUS cannot be regarded as the inventor of U.S. Application Serial Nos. 16/524,350 and 16/524,532 (the '350 and '532 application respectively") is because DABUS did not create, design, conceive or invent the function, structure or solution architecture for the corresponding inventions, these were conceived of and invented by another, the true inventor, the plaintiff, Dr. Stephen Thaler. Nor did DABUS create the actual software that was used in the creation of the inventions for those applications; nor did DABUS train the DABUS system to create the inference engine that generated the inventions that corresponds to those applications. For elaboration of this concept, please see above in the section titled "The True Inventor". The ability to discern and identify the fact of who is the inventive energy behind DABUS is one way of establishing objective indicia *vis a vis* who conceived of the '350 and '532 inventions. Stephen Thaler's name appears on the face of the patents for the DAGUI 5,659,666 patent, issued August 19, 1997, for DABUS # 1, 7454,388, issued November 18, 2008 and for DABUS # 2, US 2015 0,379, 394 A1, publication date: 12/31/2015.

---

93 "Complaint for Declaratory and Injunctive Relieve", page 14, 64, "Nature of Action", # 1, Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

The blueprint for DABUS – are in its patents. These issued patents describe the idea of DABUS, but not its actual pseudo or source code.[94] These patents describe and show in narrative and drawings the inventive concepts of DABUS that are used to create DABUS' structure and solution architecture. DABUS may have produced the output of the '350 and '532 inventions, but it only did that because its function, structure, and solution architecture were conceived of by Thaler. If DABUS had created its own function, structure and solution architecture that were then used to generate the '350 and '532 inventions, only then could it be regarded as a rightful inventor. But that did not happen here. The fact that DABUS was used as a computing device to do computation does not confer upon it the status of conceiver or inventor. DABUS did not even operate to 'reduce-to-practice' the inventions. DABUS is a computer program that operated exactly as it was programmed to operate. For elaboration of this principle, please see above in the section titled "Neural Network-Based Algorithms Are Still Just Algorithms".

Stephen Thaler invented and programmed DABUS, his agent for computing. There is no showing that DABUS is sentient or autonomous. There is nothing independent about DABUS. As noted above DABUS has no consciousness, no motivation, no independent agency, can't

---

94 "Memorandum In Support Of Motion for Summary Judgment", "Statement of Undisputed Material Facts" page 5, , # 11, Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

recognize problems, can't communicate the results of its computation. The plain meaning of 'sentient' is self-awareness. All of the instructions that DABUS executes were programmed into it just like any other computer software. DABUS lacks a physical body and a brain and it doesn't have a mind. Regarding a computer program as conceiving is anthropomorphizing. It may be that the product of the DABUS computation is patentable, but that is not because DABUS itself conceived or invented that produce.

The difference between human invention and DABUS is that a human inventor does not have another install or confer an idea's structure, data, a function and a solution architecture into one's mind. The very definition of conception is that a mind self-generates the ideas and concepts of the invention. DABUS' functions, structure and solution architecture were installed into it by another – Dr. Thaler.

The plaintiff has urged this court to disregard the assignment of the conception entirely, arguing that it doesn't matter how an invention comes into being. First, that is not the current body of case law. Second, to disregard who executes conception is to effectively destroy the patent system.

4. DABUS NOT INTELLIGENT, DOESN'T CONCEIVE AND NOT THE TRUE INVENTOR

DABUS is a narrow AI and as such cannot rightly be characterized as intelligent, even if it produces output that requires intelligence. The intelligence used to generate that output does not emanate from DABUS, but from the inventor who created DABUS. Indeed, DABUS lacks all of

the markers of intelligence that are necessary for conception. Since conception necessitates intelligence and DABUS lacks intelligence, it is evident on its face that neither DABUS nor any other narrow AI, conceives.

DABUS lacks the ability to perform a broad range of tasks, it lacks the ability to employ alternative means of representing knowledge, it lacks a motivation to invent, it cannot employ different strategies to solve problems when it gets stuck, DABUS lacks the ability to adapt, it lacks the ability to learn continuously, it lacks the ability to learn from only few examples, it lacks the ability to independently learn about many or any different subject areas, DABUS lacks agency, DABUS does not and cannot learn a model of the world, DABUS lacks the ability to appreciate and recognize problems by itself from its own environment, DABUS lacks the ability to represent higher level, abstract or contextual knowledge, ideas, concepts, or the meaning of data that is used to train it DABUS lacks the ability to perform any kind of commonsense reasoning, DABUS can't explain how or why it develops any solution, and because DABUS lacks agency, it has no free will and thus no synthetic imagination, a prerequisite for a conceiver. In short DABUS is a machine learning program that is just like a myriad of neural nets that have been invented by natural persons all over the world. DABUS is not a conceiver, it is an algorithm.

DABUS itself is not eligible to receive a patent based on 35 USC §101 because it is not the true inventor of anything. DABUS did not conceive of its own function, design its own structure or

devise the solution architecture used to generate its products - its human inventor, Dr. Stephen Thaler, did those things and all of the other 10 inventive activities associated with the creation of any neural network. Moreover, DABUS' products - the '350 and '532 patent applications - are quite possibly ineligible for patent based on 35 USC §103 law of non-obviousness in light of DAGUI 5,659,666 patent, issued August 19, 1997, for DABUS # 1, 7,454,388, issued November 18, 2008 and for DABUS # 2, US 2015 0,379, 394 A1, publication date: 12/31/2015. Though a careful obviousness analysis needs to be performed, it is possible that everything produced by DABUS is obvious to try.

5. DABUS ALLEGEDLY AUTONOMOUS, AND NOT TRAINED ON SPECIFIC DATA ?!

The plaintiff alleges that "...in the present case (the '350 and '532 patent applications), that DABUS was not created to solve any particular problem, nor was trained on any special data relevant to the instant invention. The machine rather than a person identified the novelty and salience of the instant invention."[95]

This claim is remarkable and astonishing because within the art of machine learning in general and neural networks specifically, specific training is required to train networks. That is how artificial neural nets work! A data scientist preparing an image database for use in identifying animals would probably not include lots of images of healthy or diseased body organs. Likewise,

---

95 "Plaintiff's Memorandum of Law in support of Motion for Summary Judgment", page 4, # 10, Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

a data scientist preparing a dataset for training a medical imaging system would probably not use a dataset that includes lots of pictures of dogs and cats. A review of international application WO2020079499 "Food Container and Devices and Methods for Attracting Enhanced Attention"[96] does not present any discussion, in either the spec or in the claims, of any training data used in the training process. There is no discussion of how training data is used in networks generate the product, where the data comes from, the name of the dataset, or any other details of the training process. Notwithstanding the particular architectural considerations of the DAGUI system – the 'imagination engine' and the 'alert associative center' (or their correlates in DABUS), neural networks require training with data which is used as input for computer program to produce output.

It is also noted that the DAGUI and DABUS patents themselves also do not discuss implementation details of how the DAGUI or DABUS system is trained. The mechanism of training is generally known in the art, but the *specific features* of training data are necessary to understand how any given neural network operates. As part of the patent bargain the public has a right to know how input data is transformed into output. How is it possible for the public to be in possession of an inventive concept regarding a neural network application if the features are

---

96 https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2020079499&tab=PCTDESCRIPTION&_cid=P20-KVT7WQ-38827-1

not disclosed pursuant to 35 USC §112? The features are the very definition of the neural network's input. The same is true with respect to disclosing the nature of the dataset used to train the network and how the data is prepared. Many, nay, most AI and neural network research papers that are published cite to specific datasets so that the public and other investigators can see how the network works for themselves. While such exact disclosure may not be part of the patent bargain, disclosure of the input layer features used and the data in general is necessary.

The plaintiff's claim that 'no trained data relevant to the instant invention' seems exaggerated and they have not made it clear in either the 'Neural Flame' or other DABUS inventions how a neural network can produce inventive results without 'any special data relevant to the invention'. Moreover, How can the plaintiff's claim that no trained data relevant to the instant invention' be substantiated if the input data, features or dataset are not described in their disclosures?

6. DABUS IS NOT AN AGI

When DABUS is described by the plaintiff as 'autonomous'[97] and further claims are made that "DABUS was not created to solve any particular problem, nor was trained on any special data relevant to the instant invention. The machine rather than a person identified the novelty and

---

97 "Complaint for Declaratory and Injunctive Relieve", page 4, # 18, Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

salience of the instant invention."[98], this describes an artificial general intelligence – a machine that is not trained on any specific data, can solve any general problem, can recognize when a problem has been solved by itself, and can execute the solution for such a problem.

If DABUS could do the things that Thaler asserts – that it could autonomously generate independently patentable output and that it was capable of 'general intelligence' as alleged, It would mean that DABUS is an artificial general intelligence (AGI) and of course, that hasn't happened. No one is talking about DABUS at all.

If DABUS could perform as claimed, it would be out-of-the-box newsworthy. New York Times, Washington Post, CNN, NPR, Twitter, Facebook, Fox News, YouTube newsworthy. EVERYBODY all over the world would be talking about DABUS nonstop because such an AI would be of enormous value to mankind. Instead of designing beverage containers and light sticks, venture capitalists and silicon valley gurus would be using DABUS to find cures for COVID 19 and breast cancer and figure out how to make trillions of dollars by investing in the stock market.

---

98 "Plaintiff's Memorandum of Law in support of Motion for Summary Judgment", page 4, # 10, Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

If DABUS could really do what Dr. Thaler claims it could do, there would be massive and instant positive publicity and multiple billions of dollars in investment capital tossed his way (which to the best of this amicus' knowledge has not happened) then it seems very reasonable to stop and think about whether DABUS can really do what he represents it as doing.

7. *DISPUTED MATERIAL FACT – ABOUT LEARNING*

The plaintiff's 'Memorandum of Law in Support of Motion for Summary Judgment' an statement that is false on its face. He states with respect to training for their inventions that *"If similar training had been given to a human student, the student rather than the trainer would meet the inventorship criteria as inventor."*[99]

People and computers learn in very different ways. Human beings do not learn the way that neural nets learn. Neural networks learn by being exposed to very large sets of data which can be in the thousands to the hundreds of thousands of examples. Neural networks learn by virtue of objective (cost) functions, gradient descent and backpropagation together with a specialized and very specific neural network architecture that does not learn generally.

Human beings learn generally and do not require that many examples to learn. We generalize from a few examples and rules. Neural nets don't generalize from rules as at all, they use statistics and probability to adjust the parameteric weight and bias values of each neuron.

---

99 "Plaintiff's Memorandum of Law in support of Motion for Summary Judgment", page 3, # 3, Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

Human beings would generally not be able to learn by performing the advanced mathematics needed to determine the chain rule in gradient descent and backpropagation for many different layers of neurons across many features. Those calculations are not realistic for a person to perform without a computer. On the other hand, people are pretty good at natural pattern recognition and we have a kind of built-in natural parallel processor within our nervous system. To say that *"If similar training had been given to a human student, the student rather than the trainer would meet the inventorship criteria as inventor" is meaningless*. First, a human student would likely learn much more quickly than a neural network. Second, learning is causally unrelated to conception and inventorship. It is possible to learn a lot and not invent and it is also possible to invent without learning. Third, the point is not that humans and neural networks learn differently. Humans meet inventorship criteria because they conceive, a kind of intelligence. Computers do not meet inventorship criteria because they lack intelligence and do not conceive. The quoted statement by the plaintiff is misleading and false because it compares apples to oranges.

8. WHY CAN'T DABUS FULFILL THE SIMPLE REQUIREMENT OF EXECUTING AN OATH?

According to the 'Plaintiff's Memorandum of Law In Support of Motion for Summary Judgment' "DABUS is not capable of making an inventor's oath or declaration as required by 35

U.S.C. § 115(d)"[100]. Failure to fulfil the *statute* constitutes a legal problem in and of itself, but beyond that legal problem, consider the text of the 3 sentence oath presented in 37 CFR 1.63:

> As the below named inventor, I hereby declare that:
>
> The attached application, or United States application or PCT international application number
>
> _____ filed on _____.
>
> The above-identified application was made or authorized to be made by me.
>
> I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

One is prompted to ponder the reason that DABUS is unable to execute this oath. Obtaining a patent is not for the meek of heart. Conception of an idea is only one part of the patent process. Drafting an application can take days, weeks or months. Prosecuting an application usually takes about 3 years – sometimes longer. Drafting and prosecuting an application requires all kinds of intelligences, resources, and psychological traits such as determination and motivation, that are referenced above, in this brief. The easiest and simplest part of the patent process is reading and signing the inventor's oath, a process that takes an average inventor well under 1 minute.

---

100 "Plaintiff's Memorandum of Law in support of Motion for Summary Judgment", page 4, # 7, Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

How can it be that an 'artificial intelligence that is 'autonomous and capable of generating patentable output' as described by the plaintiff, is 'not capable' of reading and executing a 3 sentence oath that requires so little effort by natural persons? How intelligent can such a so-called AI be? How can such an AI be regarded as possessing any independent agency?

Dear reader, does this make sense to you? If this alleged artificial intelligence is not capable of executing a 3 sentence oath that any 6 year old child could easily do, how is it plausible that this same computer program conceives and invents? - mental activities that require all kinds of mental capabilities - the ability to reason abstractly, to have ideas, common sense, to process many different varieties of knowledge about the world, to permanently hold in one's mind the invention in its entirety at the time of invention, and so forth? How is possible that a so-called 'artificial intelligence' with the intelligence to do all of the tasks necessary for conception doesn't even possess the necessary intelligence to comprehend and execute a simple 3 sentence oath?

This admitted, simple lack of capability on the part of DABUS is not an artifact; it constitutes direct, clear and overwhelming evidence that *DABUS is not only not 'artificially intelligent', but that DABUS is not intelligent at all.* DABUS is a computer program that operates as the last link in an inventive process that was initiated and carried out by Dr. Stephen Thaler, the sole, true inventor of DABUS' products.

9. AUTONOMY & DABUS - CAN'T HAVE IT BOTH WAYS

The plaintiff has indicated that DABUS is the rightful inventor and conceiver of the '350 and '532 inventions because DABUS is autonomous and independent. But at the same time, the plaintiff alleges that even though DABUS is autonomous and independent, it doesn't have the duties and responsibilities that other autonomous and independent inventors have. In the United States, inventions are always owned by their inventors. Dr. Thaler very casually makes mention that he is the legal representative of DABUS[101]. Yet DABUS has not executed a power of attorney to Thaler and there appears to be no power of attorney from DABUS to Thaler on file. Now, if you say, 'well of course there is no power of attorney, computer programs don't have independent agency and so of course they can't execute a power of attorney', you would be right. Exactly. Computer programs don't have independent agency and since they don't have independent agency to execute a power of attorney or an oath, how can they have independent agency to conceive?

If DABUS is the true inventor of the '350 and '532 inventions and has true autonomy, then Thaler has no standing in this legal action because he is not the *bona fide* legal representative of

---

101 "Plaintiff's Memorandum In Support Of Motion for Summary Judgment", page 4, #7, "Statement of Undisputed Material Facts", Stephen Thaler v. Andre Iancu, United States District Court for the Eastern District of Virginia, Alexandria Division, Case No. 1:20-cv-00903

DABUS. If DABUS doesn't have sufficient agency to execute a power of attorney, then neither does is possess sufficient agency to conceive.

10. DABUS IS INCAPABLE OF RECOGNIZING OR APPRECIATING PROBLEMS

In a previous section, the importance of recognizing a problem was noted with respect to invention in general and was discussed with respect to so called, AI inventions.[102] Nowhere within the four corners of the DAGUI or DABUS patent disclosures is it explained how DABUS operates to recognize any overall problem to which it is assigned. So how does DABUS know to solve this or that problem? This amicus respectfully contends that since that information is absent in the patent disclosure, it had to be introduced into the inventive process externally by another and the person that so introduced this is the true inventor. It is axiomatic that recognizing and appreciating a problem is a core element of conception and since DABUS is not capable of independently recognizing any problem for which it is applied, it cannot rightly be regarded as an inventor.

K. PUBLIC POLICY CONSIDERATIONS AND UNINTENDED CONSEQUENCES

1) The legal process includes evaluation of facts. When incorrect data or untrue premises are employed in legal analysis they introduces randomness into the legal system leading to uncertainty, instability and lack of predictability in legal determinations leading to destabilization of the legal system, all undesirable outcomes.

---

102 *supra,* "Todays AIs are Incapable of Appreciating or Recognizing Any Problem".

2) Disregarding the scientific and engineering truth that computers only execute algorithms and instructions that are programmed into them and that computers are not autonomous, constitutes one way of introducing an untrue premise into legal analysis.

3) Incorrectly attributing to computers the ability to conceive, when they do not have this ability, is another way of introducing an untrue premise in a legal analysis.

4) Introducing either or both of these premises into a legal analysis will have the effect of devaluing and completely abolishing the widely and universally recognized concept of conception. Since conception is the first and essential element of the legal definition of invention, importing these false concepts will disparage the very notion of invention, per se.

5) Such a process would introduce the concept of *fictitious invention*. The reason that computer implemented inventions are inventions is that there is a real, true inventor who conceives and breathes life into and onto the computer or AI. It is folly to disregard this fact.

6) This elaborate fiction obfuscates where conception transpires and results in the abandonment of the whole of conception law in one fell swoop. If so, our legal analysis ceases to inquire into the identify of inventive concepts.

7) Obviousness jurisprudence then becomes muddled because all execution on computers is technically obvious given the input and the computer program itself.[103] Two fictions now coalesce to harm the patentability analysis: a) not taking into account the true source of conception and invention – the true inventor, and b) conflation of obvious and non-obvious subject matter by conflating AIs and computers as capable, by themselves of generating non-obvious output.

8) This now introduces the potential to regard inventions that are obvious as non-obvious, a policy that will increase confusion and contradiction in our patent system. This will lead to more uncertainty in patent law, degrade our patent system and curtail investment in technology and that will injure our economy. We need less confusion and contradiction and more stability and predictability.

Unforeseen side effects of new policies often have an unpleasant way of emerging even under the best of circumstances. Regarding a narrow AI as endowed with the same prerequisite markers as those already used for conception by genuinely intelligent beings is asking for trouble. What compelling reason is there to treat an AI as inventor when there is no proposed body of law, analysis or guidelines that address the 'AI as Inventor' side effects?

---

103 *supra, " Neural Network Algorithms Are Still Just Algorithms"*

"...we need not labor to delimit the precise contours of the "abstract ideas" category in this case." --- (Justice Clarence Thomas, Alice Corp. v. CLS Bank International, 573 U.S. 208 (2014)).

Why would it be necessary to 'labor' to delimit the precise contours of a word that no legislature or court has ever defined, which was being adjudicated in a case at the highest court in the land, and which has subsequently been used to invalidate hundreds or thousands of patents, costing the public billions and billions of dollars? There might be value in considering the far-reaching consequences of Justice Thomas' words and the consequences of not fully considering the implications of the question before the court, before we go mucking around redefining the entire concept of what it means to be an inventor. Have we learned nothing from Alice and the failure to think through the consequences of the unintended downstream consequences of judicial decisions? The patent bar, the judiciary, Congress, venture capitalists and R&D departments throughout the country have been thrown into disarray since Alice. Let's not unnecessarily repeat that chapter.

If we abolish the notion of conception, we abolish the notion of conceiver and inventor. Nationality of an inventor then becomes muddied because AIs don't have citizenship. So filing an invention as an AI might be a way that a foreign national could circumvent the requirements at the US receiving office to file when they might otherwise not be eligible for such treatment. There are any number of additional effects – some trivial and inconsequential and others – perhaps very meaningful, that boomeranging back on us in unpredictable ways. If the doctrines

of conception are abolished, then how will interference cases by resolved? These and other side effects must be properly considered before eradicating conception per se from our patent law. The remedy sought by the plaintiff, if granted, would constitute a precedential shift in jurisprudential policy that would constitute a legal hornet's nest.

What exactly is the upside in importing these false premises and their elaborate fictions?

With all due respect, this amicus is concerned that importing fictious treatment of inventions, abolishing conception from patent jurisprudence and massively obfuscating obviousness law may well lead to unintended consequences and unforeseen side-effects that neither the plaintiff, defendant, amicus nor this Court have considered but which can and will emerge after the fact to haunt the public and the courts. This is another reason that this matter should rightly be considered at the legislative level - because Congress has the procedures in place together with the resources to evaluate these types of policy changes; resources and procedures the Court lacks.

L. SUMMARY

The plaintiff and his attorneys have misled the Courts by disingenuously stating that DABUS is autonomous, has not received any specialized training, and is more akin to an artificial general intelligence, than what it is: a very narrow AI computer program. They have further disingenuously asserted that DABUS is technologically extraordinary and distinguished in the art

– such so, that they are seeking extraordinary relief as well as creating dangerous legal precedent. DABUS is undeserving of the kind of relief and treatment sought by the plaintiff.

Granting the plaintiff's request would have the following consequences, which include earth-shattering, monumental changes in the law of patents. The plaintiff, Dr. Stephen Thaler and his team of attorneys:

a) wish to expunge the requirement for conception, and substitute instead the metric of whether or not a computer program generates patentable output. The plaintiff and his attorneys wish to, in one fell swoop, discard all of the case law that has been accumulated with respect to conception.

b) ignore, and wish for this court to ignore, the overwhelming amount of evidence that neither DABUS nor any other AI possesses any kind of intelligence. The effect of ignoring this fact is to eliminate the requirement that an inventor possess intelligence, a necessary prerequisite for conception.

c) unilaterally change the plain meaning of the statute 35 USC §115, introduce an exception which is not part of the statute and eliminate the requirement that the inventor itself/himself/herself read, understand, and execute an oath by signing or acknowledging a simple 3 sentence text that has been in standard use in patent prosecution in the United States and many other jurisdictions, which attests that invention is generated by the inventor.

d) abolish the requirement that inventors independently recognize and appreciate the problem that led to the invention and abolish the requirement that inventors themselves, independently

explain how to make and use the invention, unilaterally change the plain meaning of the statute 35 USC §101 from "whoever" to 'howsoever'.

These changes would create an upheaval in the patent system and bring about unforeseen and probably dire consequences to a system that works, but is already beset with very meaningful problems. The US patent system is a 228 year old work in progress. The proposed changes would undermine patent law by introducing numerous structural changes whose effects are unknown and unconsidered.

With all due respect to Dr. Thaler and his counsel, this amicus thinks it unwise to overthrow the well accepted principles of inventor oaths, conception, the settled need for an inventor to have intelligence with the implicit standard that such intelligence (synthetic imagination) exceed that of a PHOSITA, as well as the other separate issues raised throughout this brief. Granting the plaintiff's prayer is probably unconstitutional because changes of this nature should be placed before the public for evaluation. The remedy sought by the plaintiff might even effectively breach Article 1, Section 8, Clause 8 of the Constitution, for lack of due process. The kinds of changes prayed for by the plaintiff must be decided by the People. Litigating these issues in court constitutes an end-run around the legislative process. Congress is the only venue with sufficient resources and means to evaluate any potential merits or shortcomings of the proposed, far-reaching changes sought by Dr. Thaler and his legal team.

M. PRAYER

This amicus requests this Court 1) to affirm the judicial ruling of the Eastern District of Virginia denying petitioner Dr. Stephen Thaler's request to name his invention DABUS as an inventor and 2) elaborate in the opinion that the substantive rationale for affirming the decision is (a) that invention and conception are mental activities,[104] (b) that the conception of artificial intelligence inventions requires these same mental activities [105] that (c) these mental activities of conception require certain type of intelligent capabilities[106] that (d) at this point in time, no Artificial Intelligence possesses any of the intelligences requisite for invention or conception[107] and therefore (e) (narrow) AIs are undeserving of being regarded as inventors.

/s/ Mitchell Apper, *pro se*

---

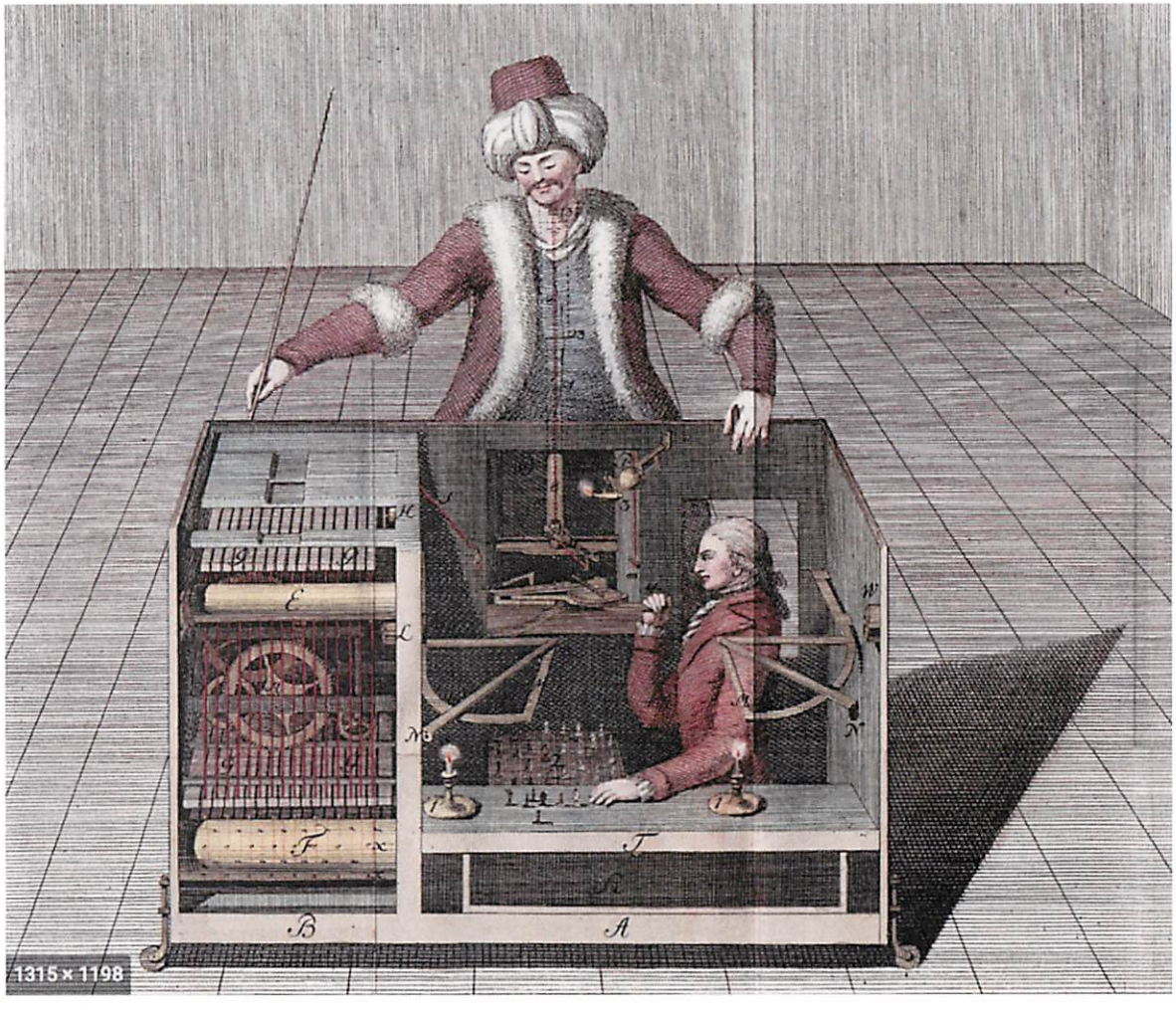
104 *supra,* "Prerequisite Markers of Intelligence Essential for Intelligence".

105 *supra,* "Correlating Prerequisite Intelligence for Invention and Conception".

106 *supra,* "The True Inventor".

107 *supra,* "Narrow AIs are Incapable of the Intelligence Requisite for Conception".

The Emperor's New Clothes



The Original Mechanical Turk

Mitchell Apper

10024 Ranch Hand Avenue

Las Vegas, NV 89117

(310)659-7088 (Voicemail Only)

(+972) 58-659-7088

John C. Paul

Court Services Manager,

CLERKS OFFICE

U.S. Court of Appeals for the Federal Circuit

717 Madison Place NW

Room 401

Washington, DC 20439

(REFERENCE CASE NO. 21-2347)

X

FedEx Office

Washington DC 16th and K St Node # 1822
(202) 466-3777 fax (202) 466-4165

CALL WHEN DONE ☐

1822-03ZGX-1

Align bott

ouch here.