Artificial Intelligence and IP: Can AI Invent?

AI & Ethics Panel
IFCLA Conference 2021
Toronto, Ontario
October 1st, 2021

Mark D. Penner
Fasken

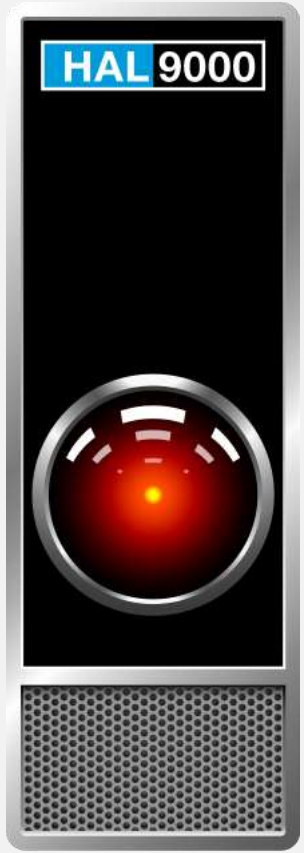
Tool or Tool Maker?

“Sometime early in this century the intelligence of machines will exceed that of humans. Within a quarter of a century, machines will exhibit the full range of human intellect, emotions and skills, ranging from musical and other creative aptitudes to physical movement.

…

We will reverse-engineer the human brain, and fortunately for us it’s not even copyrighted!”

Ray Kurzweil *The Coming Merging of Mind and Machine* (Scientific American 2009)

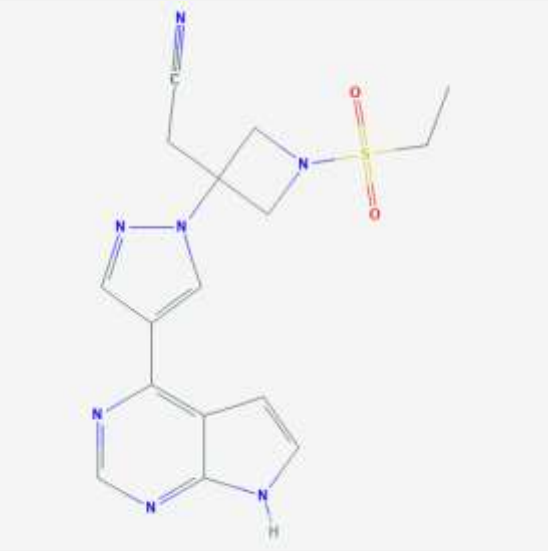


Overview

- Intellectual Property (“IP”) Considerations
- What’s a monkey got to do with this?
- Can AI infringe IP rights?
- Should AI created inventions be entitled to IP protection?

COVID and AI

- Baricitinib as potential treatment for 2019-nCoV acute respiratory disease, *The Lancet*, February 4, 2020 (Online Publication)
  - “Together with customisations bespoke to 2019-nCoV, we used BenevolentAI to search for approved drugs that could help, focusing on those that might block the viral infection process. We identified baricitinib, which is *predicted* to reduce the ability of the virus to infect lung cells.”



Intellectual Property Considerations

FASKEN

AI and Intellectual Property

- How can IP protect AI related technology?
  - Patents
  - Trade Secrets
  - Copyright

Proces vs. Output

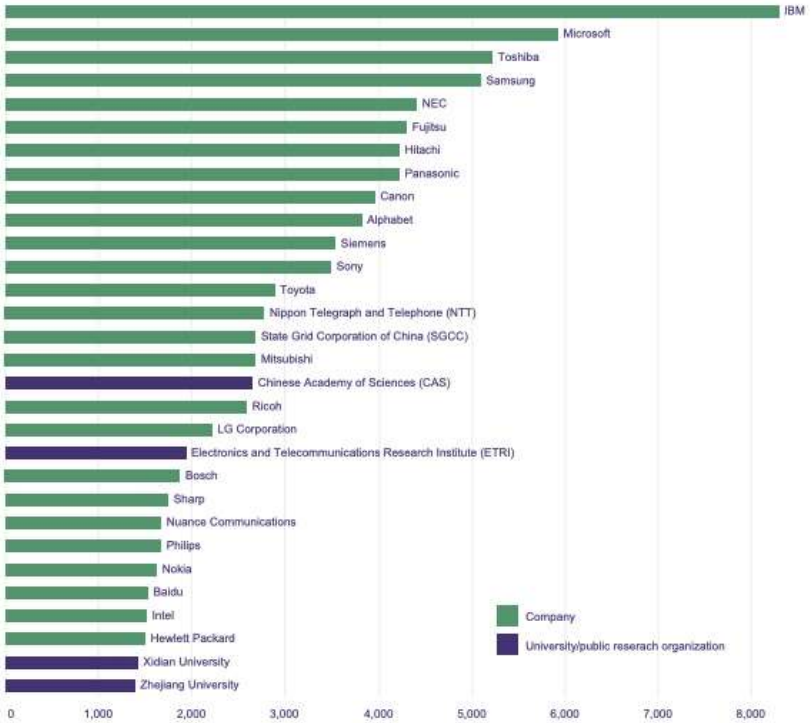
- The “Process”
  - engineers/computer scientists develop AI platforms or “engines” to make the predictions
- The “Output”
  - “off the shelf” or bespoke AI tools using data set to make specific predictions

IP Considerations

- IP issues typically stem from two main aspects
  - Infringement and/or Freedom To Operate (“FTO”)
    - If/when you incorporate AI based technology in products or services, what is the scope of third-party IP (e.g. would the Process and/or the Output infringe?)
    - Can you sue AI based technology for infringement?
  - Ownership
    - Can entities protect their investments in the development of AI related technology per se (e.g. the Process)?
    - Can AI based technology own invention? Can it assign invention?
    - Can the results of AI related activity be protected (e.g. the Output)?
      - Even when no human involved?

Figure 4.1. Top 30 patent applicants by number of patent families

Companies represent 26 of the top 30 AI patent applicants worldwide



Note: Fujitsu includes PFU; Panasonic includes Sanyo; Alphabet includes Google, Deepmind Technologies, Waymo and X Development; Toyota includes Denso; and Nokia includes Alcatel

WIPO Technology Trends 2019, “Artificial Intelligence”, pg. 60

Software Patents

- Cannot merely be an abstract idea or purely mental process
- Need to show the invention:
  - provides “something more” (e.g. a solution to a technical problem, a practical application);
  - produces a “further technical effect” going beyond the normal physical interactions between program and computer
  - is combined with one or more physical elements; or
  - improves the functioning of a computer

Ownership (Human Derived)

- Creation (e.g. authorship/inventorship) is the first point of analysis for determining ownership of IP
  - Inventor = Owner, unless a rule/reason to the contrary

Ownership (AI Derived)

- What if an AI-enabled machine invents something (e.g. the “Output”)?
  - In conjunction with human activity?
  - Independently?

Freedom to Operate

- Does the Process/Output infringe third party IP rights?
  - If/when AI-based technology is incorporated into products or services, potential for infringement of IP
    - Use of patented processes or copyrighted material

Freedom to Operate

- Can independent AI activity raise issues of IP infringement?
  - Who is responsible if the AI's independent activities infringes IP?
  - Induced or Contributory Infringement?
    - If AI does not have sufficient legal standing, what about the end user, the owner and/or developer?

Monkeying Around

FASKEN

The “Monkey Selfie”

The “Monkey Selfie”

- “Naruto” was an Indonesian macaque who happened upon wildlife photographer David Slater’s camera and snapped a "selfie”
- The “monkey selfie” was published in *Wikimedia Commons* image library; Slater objected arguing that he owned the copyright
- In December 2014, the U.S. Copyright Office stated that works created by a non-human are not copyrightable
- Slater then publishes a book with the image
- In 2015, PETA filed a lawsuit against Slater requesting that Naruto be assigned the copyright and that PETA be appointed to administer proceeds

The “Monkey Selfie”

- A U.S. district court found that Naruto had no rights to “his” selfie because the current copyright statute as interpreted affords rights to humans, not animals
- PETA appealed
- In September 2017, both PETA and the photographer agreed to a settlement in which Slater would donate a portion of future revenues on the photographs to wildlife organizations
- 9th Circuit Court of Appeal (California) declined to dismiss the appeal and declined to vacate the lower court judgment.
- In April 2018, Court of Appeal affirmed that animals cannot legally hold copyright

Can AI “invent”?

Can AI be an Inventor?

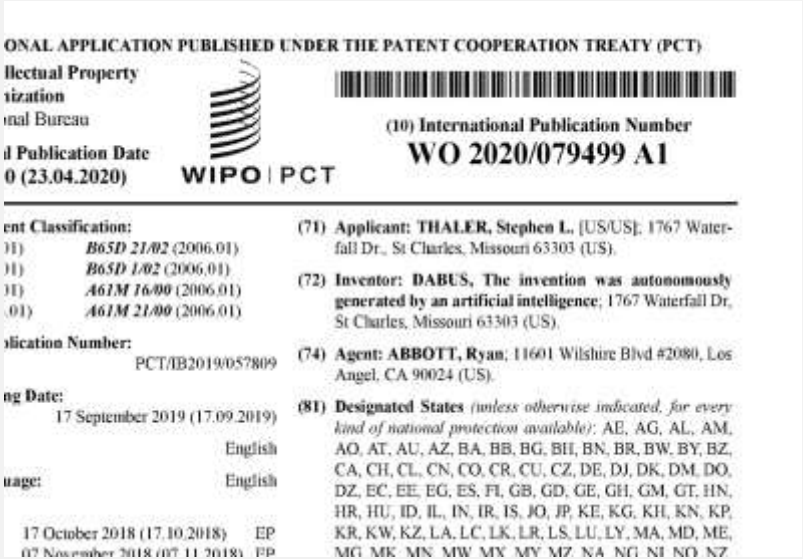
- IP legislation typically defines the action that makes the actor, not the actor *per se*
  - Section 27 of the *Patent Act* (Canada) provides that a patent shall be granted to "… the *inventor* or the *inventor's legal representative*…"
  - Canadian Courts: the *person* whose conception gives rise to the invention, and/or as the *person* that sets the conception or discovery into a definite and practical shape
  - U.S. *Patent Act* defines "inventor" to mean "… the *individual* or, if a joint invention, the *individuals* collectively who invented or discovered the subject matter of the invention."
  - *European Patent Convention* and EPO Boards of Appeal provide that inventor must be a legal person

AI as Inventor

- What role did the AI play in the Process and/or Output?
  - Did it play a role in the conception?
  - Did it play a role in the reduction to practice?
  - Did it play a role in the creative act of invention?

AI as Sole Inventor

- DABUS is an AI system
  - created by Stephen Thaler
  - “Creativity Machine”
- In 2018, patents applications were filed for two families (e.g. two inventions) at the EPO and subsequent PCT, UK and US patent applications were filed
- All designated DABUS as inventor



ONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

llectual Property
ization
nal Bureau
l Publication Date
0 (23.04.2020)

WIPO | PCT

(10) International Publication Number
WO 2020/079499 A1

ent Classification:
H) *B65D 21/02* (2006.01)
H) *B65D 1/02* (2006.01)
H) *A61M 16/00* (2006.01)
.01) *A61M 21/00* (2006.01)

lication Number:
PCT/IB2019/057809

ng Date:
17 September 2019 (17.09.2019)

English

uage:
English

17 October 2018 (17.10.2018) EP

(71) **Applicant: THALER, Stephen L.** [US/US]; 1767 Waterfall Dr., St Charles, Missouri 63303 (US).

(72) **Inventor: DABUS, The invention was autonomously generated by an artificial intelligence**; 1767 Waterfall Dr, St Charles, Missouri 63303 (US).

(74) **Agent: ABBOTT, Ryan**; 11601 Wilshire Blvd #2080, Los Angel, CA 90024 (US).

(81) **Designated States** *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ

AI as Sole Inventor

- Thaler stated that he had “acquired” the right to the inventions from the inventor by being its successor in title, arguing that as the machine's owner, he was assigned any intellectual property rights created thereby.
- Patent offices and courts forced to consider whether a patent can be granted for an invention reportedly made by an AI system

DABUS invented…

- Walled container having a “Fractal profile”
  - Better grip
  - Allows coupling by inter-engagement of containers
  - Convex and concave fractal elements provide for increased surface area

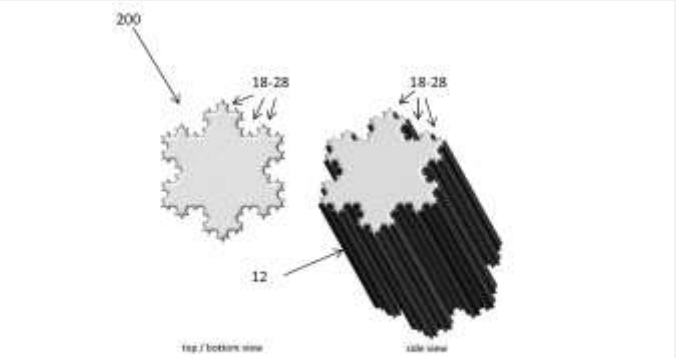


Fig. 6

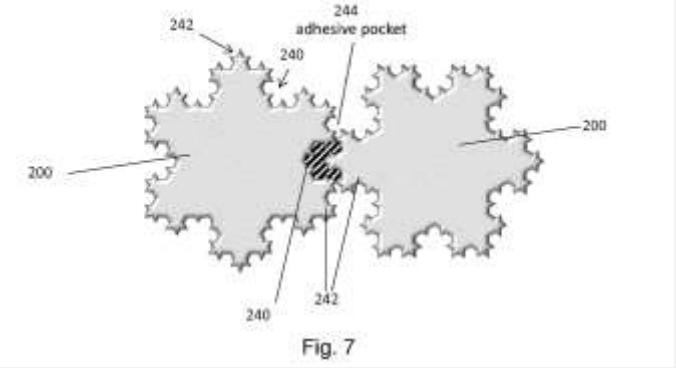


Fig. 7

AI as Inventor?

- The EPO, UKPO and USPTO all refused the applications
- South African Patent Office allowed it
- Australian Patent Office initially refused but Australian Federal Court found that AI inventor not inconsistent with patent system

AI as Inventor?

- In October 2020, USPTO released two reports based on the input provided (here)
  - The diffusion of AI across technologies, organizations, inventor-patentees, and U.S. regions (here)
  - Public Views on AI and IP Policy (here)
- Consensus: no changes needed to IP law but consider new form of “data” protection

Mark D. Penner

- Partner
- +1 416 868 3501
- mpenner@fasken.com

FASKEN

FASKEN