

ARTIFICIAL INTELLIGENCE & INTELLECTUAL PROPERTY

— A DIALECTICAL DISCOURSE

A. Conference Date: November 28 ~29, 2019

B. Venue: School of Law, Singapore Management University (SMU)

C. Topics and Contributors

TOPIC	CONTRIBUTOR	AFFILIATION
1. Technology and Business of AI		
1.1 Technology	Anthony Mancho So	The Chinese University of Hong Kong
1.2 Commercial Applications	TBD	TBD
1.3 How AI Reshapes IP Economics and Paradigms	Reto's Suggestion	Max Planck Institute for Innovation and Competition, Germany
2. AI & Patent Law		
2.1. AI Implemented Inventions	TBD	TBD
2.2 AI as Invention Tool		
2.2.1 Foundational Patents	Raphael Zingg	Waseda University, Japan
2.2.2 AI and patentability (inventive step)	Ichiro Nakayama	Hokkaido University, Japan
2.3 AI Invention	TBD	TBD
2.4 AI and the Shift from Products to Processes	Feroz Ali	Indian Institute of Technology Madras, India
3. AI & Copyright Law		
3.1 General Perspective	Jacob Li	National Tsing Hua University, Taiwan
3.2 Commonwealth Approach on "Computer-Generated Works"	Jyh-An Lee	The Chinese University of Hong Kong
3.3. Copyright Law as a Barrier to AI?	Ana Ramalho	Maastricht University, Netherlands
4. AI and IP Administration		
4.1 Searches of Preexisting IP Rights		
4.1.1 Patent	TBD	TBD
4.1.2 Trademark	Anke Moerland	Maastricht University, Netherlands

4.2 Determination of IPR Infringement	Daniel Seng	National University of Singapore
5. Legal Aspects of Software and Data		
5.1 Rethinking Software Protection	TBD	TBD
5.2 Protection of and Access to Data	Kung-Chung Liu	Singapore Management University
5.2.1 Protection of and access to data under European Law	Matthias Lesitner	Ludwig-Maximilians-University, Germany

D. Research Questions and Intended Contribution

1. Technology and Business of AI

1.1 Technology

The technical experts on AI are supposed to act as “consultants” for the various speakers prior to the conference to help them understand what happens within the “black box” of AI. It is important to understand its potential and limits related to new creations and technical innovation.

1.2 Commercial Applications

Speakers are invited to clearly address realistic scenarios and to contradict uninformed and science-fiction perspectives to be found in daily news etc. The session is intended to reflect on specific sectors, in which the creation of something new happens under involvement of AI (e.g. in terms of an innovation tool), such as (but not limited to)

- a. medical research – e.g. in terms of developing (complex) substances (AI replacing testing with patients), possibly therapies or whatever, and anything else like mechanical inventions.
- b. the composition of texts (press news, translations etc.), but with a realistic perspective on the usefulness of the outcome (beyond the examples of “New Rembrandt” or “Edmond de Belamy”).

1.3 How AI Reshapes IP Economics and Paradigms

The relevant issue here is to what extent the various theoretical assumptions justifying IP rights (in particular the belief that IP rights are needed in order to avoid market failure or public goods underproduction) still are valid under the circumstances in which AI is involved. A too broad approach should be avoided. It is not about “AI economy” as such, but really with a focus on IP. In essence the question is whether those theories (and paradigm) justifying IP rights in general still apply (and are convincing) under the new – different – conditions. In truth, many of these theories are of doubtful value in the traditional world already. Traditionally, lawyers are better informed about this discussion, but on a very theoretical level only. Economist, in contrast, are hardly interested in a general view, but are focusing on what we might consider “details”, at least those doing empirical research.

More concretely, we should – for instance – focus on the question whether a “market failure” (at it is assumed in case of lacking exclusivity in the traditional world) still might occur if much less or different resources (if any) need to be invested to generate something based on AI. A further theory focusses on marketability of intangible goods (patents are the showcase: without patent protection, only keeping innovation secret might provide certain competitive advantages). This also might be an issue related to data; in fact, if we want certain market players to share (highly special) data, that are not generally available, we might first have to talk about their protection (but not necessarily a general property right in data), before we request access for third parties. In case of doubt we would prefer having someone(s) who may not provide answers based on already completed economic research, but who is at least able to ask the relevant questions, even if such questions need to be answered later. This might also be a lawyer, being sufficiently aware of economic insights and methodologies.

2. AI & Patent Law

2.1. AI Implemented Inventions

AI-implemented inventions are characterized by the fact that “ordinary” products apply AI while they are used, comparable to “computer-implemented inventions” (like a mechanical, but software-driven anti-lock braking system). A driverless car, for example, in the first instance is a mechanical device (like a traditional car); but it does not crash with other cars because it is driven by tools applying AI (instead of a human driver). The question basically is what implementation of AI into products means from a patent law perspective.

2.2 AI as Invention Tool

Here AI is used for the purpose of innovation; the outcome still may be an ordinary product that can be applied in a traditional way. It is developed – or perfected – by a human inventor, however, based on AI as a “research tool”. This tool assists the human inventor in finding a technical solution to a human-defined technical problem. One example was a NASA space antenna developed under the involvement of AI; similarly, a new drug (as such not involving AI, but simply a chemical substance) may be developed based on AI.

In this context, two questions (and maybe more than that) are of interest:

- a. The research tool as such may be the innovation; what does this mean in view of the fact that we might not know how the tool actually works – and also taking into account that it changes over time through “learning”. How can we claim the subject matter of protection – and how do we determine the relevant state of the art? Have such patents been granted? In the given case: how is the invention as such disclosed? What is at the core of the patent (e.g. software, see also topic 10)? Are there – similar to business model patents – claims explaining the problem which the AI tool solves (rather than how they solve the problem)?
- b. As to the outcome – invented under the involvement of an AI research tool – one major question is how to determine the relevant knowledge of the person skilled in the art (applying the AI research tool, however, possibly without understanding the choice made by the tool).

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2.3 AI Invention

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2.4. AI and the Shift from Products to Processes

How electricity electrified inert objects a while ago, AI will soon cognify inert objects into intelligent ones. Like nuclear energy and gene editing, AI qualifies as an “ex-treme technology”, which is tech that we have not fully mastered (civilised), is potentially hazardous (bad can outweigh the good) and comes with enormous impact on human life (can wipe us out). However, unlike nuclear energy, AI will be cheap, ubiquitous and give power to the people. With AI, the world will see a shift from products (ownership) to processes (access or usership). Patent law initially focused on process-es (manner of manufacture) then moved to products and with AI (which enables processes) the shift will be on processes again. The ubiquitous availability of AI will commoditise products and the uniqueness will remain in how AI is implemented (process). The shift towards processes will also see a shift from patent protection to trade secrets. Car manufacturers like Porsche, Chrysler and Hyundai have already introduced subscription models (services or process) moving away from selling cars (products)

3. AI & Copyright Law

We intend to have one or two general talks clarifying some fundamental issues as to the question of whether outcomes generated under the involvement of AI shall be subject to an exclusive right. The discussion basically might focus on the traditional theories justifying copyright protection, stating e.g. that any personality-right-related approach fails from the outset if a human creator is missing. Economic justifications, in contrast, only might be valuable if circumstances are comparable to human creation etc. Another talk might – amongst other things – focus on the commonwealth approach on “computer-generated works” (like in the UK).

An additional talk should primarily reflect on the fact that AI requests (training) data that in principle may be available (e.g. via open contents on the internet); however, the vast majority of such data – e.g. text or pictures – will be copyright protected. Copyright law may turn out to be “a barrier to AI” – unless it is limited. This issue is – somewhat – related to the question of Text and Data Mining (TDM), but goes beyond it.

4. AI and IP Administration

AI may assist IP administration in many ways, for instance for searches of preexisting rights (patents, trademark etc.), the determination of likelihood, similarity and confusion, the determination of copyright infringement (e.g. filtering content, as it might be the solution to comply with the new Art. 13 EU-Directive on CR in the digital single market).

5. Legal Aspects of Software and Data

5.1 Rethinking Software Protection

A key issue of AI is related to software, currently protected through copyright law and (at least for applied software) patent law. This protection, however, clearly applies to the initially involved – human-generated – software only. In the course of learning processes, different kinds of software (“software 2.0”, so to speak) is involved; that kind of software changes over time, for which reason it is not clearly definable. In view of that – and in case economic considerations suggest any kind of legal exclusivity – traditional software protection hardly may apply anymore.

5.2 Protection of and Access to Data

Data are of crucial relevance for AI with a view to the training of the tool. If freely available data are concerned, issues of usability from a copyright perspective may be involved (see in that respect also (7), as to TDM), but also – if person-related – from a personality rights perspective. In contrast, data may also specifically be generated for the purpose of AI. In that case, one core question may be whether investments are necessary that requires any kind of legal exclusivity in order to avoid a particular form of market failure (in terms of under-investments in the generation of such data due lacking possibilities of excluding third parties from the use of such data). At the same time there might be public interests (e.g. in medical research) to reduce costs for the generation of data and to incentivize data sharing. In case any kind of legal protection should be granted, it might therefore be necessary to oblige data possessors to provide access to data (e.g. on FRAND terms).

E. Deadlines

- 1. First Draft: October 27 2019**
- 2. After-Conference Draft: December 28, 2019**

SMU School of Law will cover the costs of economy class return tickets and three night accommodation, only when contributors commit to submit the full paper one month before the conference, which is October 27 2019 and deliver the final paper one month after the conference, which is December 28, 2019. If the contributor misses any of the deadline, he or she will need to take care of the costs or reimburse the individual cost paid by SMU. We hope this will speed up the publication of the book.

F. Citation Style

Please use footnotes, instead of endnotes, complying with the OSCOLA (Oxford University Standard for the Citation of Legal Authorities).

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