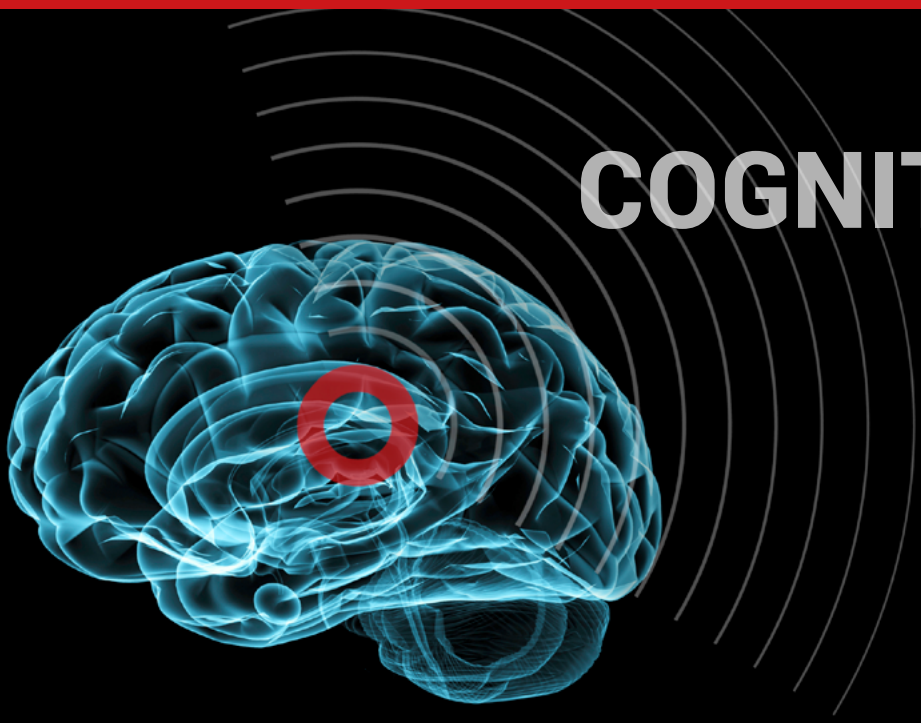
COGNITIVE NEWS
11/2019 | © 2019 swisscognitive.ch



SWISSCOGNITIVE

Patents on Artificial Intelligence – Valuable assets or not worth the paper they are printed on?[1]

Michael M. Fischer
M.Sc. Computer Science,
German and European Patent Attorney
at Venner Shipley LLP, Munich,
D.E.S.U. European Patent Litigation
(CEIPI)

Artificial Intelligence (AI) is a cross-section technology that is invading almost all fields of technology leading to many interdisciplinary inventions. That means that all patent practitioners should have some basic knowledge about the challenges that arise in the context of AI inventions in order to be able to assess these inventions at least to the extent that they are able to make a well-founded decision whether to file a patent application or nor. When talking about patents in the field of computer-implemented inventions, and in particular about patents in the field of AI, one almost inevitably comes to a point in the discussion when the argument is raised that detectability of infringement of these patents is very difficult - if not impossible - and thus it does not make sense to file patent applications in this field. Instead, it should be tried to keep the underlying algorithm as a trade secret. Although this argument is certainly a valid and strong one, this article wants to provide a list of counter-arguments. (I admit that the last five arguments of this list are not specific to AI patents, but should nevertheless be mentioned for the sake of completeness.)

1. Patents cannot simply be ignored
(even if detectability of infringement is difficult).

Imagine you want to hit the market with a new innovative AI product (e.g. an intelligent app in the medical field, e.g. for diagnosing skin cancer) and you make an FTO-analysis in order to find out whether there are any patents that your AI product might infringe. If you find a patent that covers your product, it is not advisable to ignore this patent, even if it will be very difficult for the proprietor of the patent to find out that your product infringes it. Apart from damages that the proprietor could get from you, there is even the risk of imprisonment or a fine in many jurisdictions.

In Germany, for example, section 142 of the Patent Act stipulates that any person acting without the requisite consent of the proprietor of the patent who manufactures or offers, places on the market, uses a product which is the subject-matter of the patent or either imports or holds the product for one of the purposes mentioned, or uses or offers for use within the territorial scope of this Act a process which is the subject-matter of the patent shall be liable to imprisonment for no more than three years or a fine. It follows from section 15 of the German Criminal Code that the infringement must have been done intentionally – which would be the case in the example above – in order to entail punishment. Even an attempt shall be punishable.

If it comes to litigation in the U.S. your competitor may be able to find out via a discovery – which covers all relevant material (even remarks made with respect to other jurisdictions or any e-mails unless they are subject to attorney-client privilege) – your explicit decision to ignore a patent.

[1] *A nice saying but an anachronism in the age of digitalization and paperless offices*

2. Accepting a patent and paying a license fee may be easier than living in constant fear of litigation.

Last but not least due to the consequences set out under reason 1, practice shows that a patent is normally respected by your competitor at least if it is made aware of it and, especially if it does not see any possibility of invalidating it by opposition or nullity proceedings. It is not unrealistic to assume that your competitor prefers to pay a reasonable license fee instead of living in constant fear of litigation which is time-consuming, costly and unpredictable for all parties involved. Only a very small fraction of granted patents is used for litigation and only a small fraction thereof is litigated until a legally valid decision is reached.

3. The technology of reverse-engineering and disassembling is evolving quickly.

For example, the Horst Görtz Institut of Ruhr Uni Bochum is renowned for the research it does in this field and even offers lectures in reverse engineering. On October 8, 2019, it was announced in a press release[3] that they developed a hardware reverse engineering tool. Moreover, "software forensics" is a scientific discipline in its own right which deals among other things with detecting infringement of patents which cover a computer-implemented invention. With the rapid development of technology in general, it is not surprising that the methods used in software forensics are becoming more and more sophisticated. Even if you think that it is very difficult to prove infringement of your patent, a patent gives you protection for your technology for 20 years and possibly detectability of infringement will be much easier in the not so distant future. As a side remark, also the law can change quickly. For example, the burden of proof could be shifted from the plaintiff to the defendant which means that the defendant has to prove that it is not infringing a patent.

4. More and more companies offer services in infringement detection.

Software forensics is a growing market, especially in the U.S. Bob Zeidman is an internationally renowned expert in this field who founded the company Zeidmanconsulting. He wrote the book "The Software IP Detective's Handbook - Measurement, Comparison, and Infringement Detection" in 2011. There are other companies such as IEC & Associates[4] and Softwarelitigationconsulting[5] by Andrew
Schulman and many more that are specialized in detecting whether a software or hardware product infringes a patent.

5. Input/Output-Analysis is often possible.

If your AI product is running on a server, then another (intelligent) software could bombard it with a very large number of inputs and register the output for each input. Then, based on the inputs and outputs, it could be figured out (by a human being or even a machine) how your AI product is working. Therefore, it is advisable to file a patent application for your AI product.

6. Software can be run on a virtual machine.

In T 2440/12, the Board held that a sold software product was prejudicial as to novelty since it could be run line-by-line on a virtual machine. Running a software line-by-line on a virtual machine (and observing how the memory changes) may also help detect whether it infringes a patent claim.

7. Infringement detection is not always difficult.

If a patent is directed e.g. to a graphical user interface, to the input or output of a software, to a hardware component or to the control of a machine (e.g. control of a washing machine), then detection of infringement may not necessarily be difficult. In these cases, it may be particularly important to file a patent application. Infringement detection is also a matter of how you draft your claims. If possible, for example, an experienced patent attorney should try to direct claims to the input or output of the invention. It is also advisable to avoid claims directed to systems involving several components (which could be placed in different jurisdictions which would render any infringement action impossible). If possible, a claim should be formulated as a single actor claim.

8. Standardization is one of the next big things in AI.

The most valuable patents in the field of computer-implemented inventions are those that are related (relevant or essential) to a standard, for example a telecommunications standard or an image/video/audio compression standard. The German Institute for Industry Standards (DIN) and the German Federal Ministry of Economy and Energy organized a kick-off conference[6] on the topic of "standards and AI" on October 16, 2019 in Berlin which was attended by some 300 participants including myself. At the conference, it was common ground that standards - in general but in particular in the field of AI - are important for interoperability. It has been

[3] *https://news.rub.de/wissenschaft/2019-10-08-it-sicherheit-weltweit-einzigartiges-hardware-reverse-engineering-tool*
[4] *http://forensic-engineering-consultants.net/home.html*
[5] *http://www.softwarelitigationconsulting.com*
[6] *https://www.din.de/de/din-und-seine-partner/presse/mitteilungen/kuenstliche-intelligenz-braucht-normen-und-standards-484056*

SWISSCOGNITIVE

discussed that the term "safety" has to be transferred into the digital world. Therefore, it is envisaged that an Association for Technical Inspection (in Germany this association is called "TÜV") will also assess the safety of algorithms, for example an algorithm for a self-driving vehicle. Such a software cannot be kept completely

secret and it may be advisable to file a patent application for your specific software solution in this field because it may become part of a standard. A first business plan which may later become a standard is DIN Spec 13266 "Guideline for the development of Deep Learning Image Recognition Systems"[7]. It should be mentioned that already the cover page of the document asks recipients of the business plan to inform about patents that exist in this field. The International Standards Organization (ISO) is also dealing with standards and AI. In 2017, they established the committee ISO/IEC JTC 1/SC 42 which deals exclusively with standardization in the area of Artificial Intelligence[8]. Without wanting to fuel a gold rush mood, I think that now is the time for filing patent applications in AI which could become relevant or even essential for AI standards of the future. I conclude this paragraph with the saying "Who has the norm, has the market." Think about it!

9. European General Data Protection Directive offers an approach to detect patent infringement.

The idea of detecting patent infringement based on the European General Data Protection Directive is explained in the article "Implications of the General Data Protection Regulation (GDPR) for Detecting Infringement of Artificial Intelligence (AI) Patents"[9] by R. Free and L. Pugh and has been published in EPI Information 3/2018.

10. It is often possible to steer a middle course between level of disclosure required for a patent and trade secret.

It is understandable that the inventor of a software is reluctant to disclose the algorithmic idea, in particular because once the software is compiled, it can be sold and used while it is very difficult to find out the underlying algorithmic idea. In some cases, it might therefore be advisable to treat algorithmic details of the invention as a trade secret. However, a patent could still be obtained by disclosing the invention on a higher level without compromising the requirement of sufficiency of disclosure (Art. 83 EPC). It should be mentioned that the EU adopted a "Directive on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure" in 2016 which has to be transformed into national laws by the EU member states. With the Directive improving the enforceability of trade secrets, trade secret holders will be entitled to apply for remedies following cases of illegal appropriation of documents, objects, materials, substances or electronic files containing the trade secret or from which the trade secret can be deduced.

11. Competitors within the same technology space often know what the other is doing.

Keeping completely secret how your software works is more difficult than you might think. You must keep in mind that nowadays software developers frequently change companies and know-how may silently, implicitly and inadvertently diffuse from one company to another. Even if you can try to inhibit this by imposing strict confidentiality on employees developing software, this cannot be completely avoided. Even if an employee has breached confidentiality, it will be very difficult, costly and time-consuming to prove this breach before court. Software developers moving from one company to another is the most common reason that software is stolen or accused of being stolen.

12. At least in U.S., you do not have to prove infringement beforehand.

US patent litigation allows liberal pre-trial discovery. The Federal Rules of Civil Procedure allow extensive discovery of an accused infringer's electronic communications, sales numbers, manufacturing processes and also source code of a software possibly infringing a patent claim as well as other information "relevant to any party's claim or defense and proportional to the needs of the case". A suspicion of infringement is often sufficient to obtain the source code. While such liberal discovery is responsible for significantly higher litigation costs and longer periods between filing and trial, it also allows a plaintiff to obtain information that it might struggle to obtain elsewhere, for example in Germany.

13. What if your software development cooperation fails?

Imagine that you develop software together with another company but you did not put in place agreements to which company belongs the intellectual property emerging this development cooperation or the agreements turn out to be incomplete or invalid. Then for some reason there is a dispute and the cooperation is discontinued each company has enough knowledge to finish the software and bring it on the market itself. Such a situation apparently happened in T 2440/12 in which two companies (company A, company B) developed a software product. At some point, the cooperation was discontinued and company A sold the software product while company B – at a later point of time - filed a patent application and finally got a patent for the invention. However, company A filed an opposition against the grant of the patent arguing that the sale of the software product was novelty destroying for the grant of the patent. The Boards of Appeal accepted this argumentation and revoked the patent. (Since company B sued company A for infringement of its patent, it could not contest that the software product performed all the steps of the patented method. The only question was whether this was publicly available by the sale of the software product.)

[7] *Further projects in the field of Standards and AI can be found here: https://www.din.de/de/forschung-und-innovation/themen/kuenstliche-intelligenz/standards-fuer-ki*

[8] *https://www.iso.org/committee/6794475.html*

[9] *https://information.patentepi.org/issue-3-2018/implications-gdpr-detecting-infringement-of-artificial-intelligence-patents.html*

14. Patents can bring a lot of money.
Once a company has gone bankrupt, one thing of value that remains is the intellectual property. In June 2011, a patent portfolio (more than 6000 patents) of brankrupt telecommunications company Nortel was sold for 4.5 billion dollars to a consortium ("Rockstar Consortium") of six companies (Apple, Microsoft, Sony, RIM, EMC and Ericsson). Most of the patents dealt with computer implemented inventions. The most prized ones relate to mobile broadband technology used in emerging 4G standards such as long term evolution (LTE)[10].

15. Patents help that the development of AI is not completely kept secret.
This argument is not an advantage for an individual person or company but for the society as a whole. The idea of a patent system is a "quid pro quo" ("this for that"). In exchange for an inventor disclosing his invention, he can prohibit competitors from bringing the same invention on the market and can exploit the invention economically by having a monopoly.

16. A patent application is the only way allowing you to talk to other people about the invention.
If you intend to talk about your idea with other persons, for example a potential busi-ness partner, then it is essential that you file a patent application beforehand. This is the only protection against someone else copying your idea. But also vice versa, a filed patent application may be a prerequisite for the business partner to let you come to discuss your idea to avoid that you later accuse the business partner for copying your idea in case someone else in the business partner's company has already got a similar idea. Many companies have the rule that allow outsiders to tell about their ideas only once they confirmed that they have filed a patent application or utility model application.

17. Investors want to see patents, especially in the U.S.
It is not a secret that if you are a tech start-up and want to attract money from a VC, you are well advised to show him that you have a patent application pending or even a granted patent. This is especially true if your start-up is in the U.S. or wants to be successful in the US market or attract money from a US investor.

18. Keeping a patent application pending can be a threatening posture.
In Germany, for example, it is possible to wait for seven years until you request examination. During this time, your competitor cannot estimate the chances of success that patent will be granted. The pending patent application is a threating posture for him. However, everybody can request examination and thereby stop this state of uncertainty.

«It is not a secret that if you are a tech start-up and want to attract money from a VC, you are well advised to show him that you have a patent application pending or even a granted patent.»

19. A patent demonstrates your potential of innovation and creates prior art for your competitors.
Let`s face it. Many analysts who assess the value or the innovational strength of companies simply look at the number of patents a company has been granted. They are unable to analyse the quality of the patents (whatever that means), e.g. the commercial value, validity or enforceability of a patent. The number of patents granted is a generally accepted indicator for the innovational strength of a company. Moreover, once your patent application is published, it will become prior art which means that it will be more difficult for your competitor to obtain a patent because his invention has to be delimited from your published patent application.

20. Who dares to attack you if you sit on a large patent portfolio?
Having a large patent portfolio certainly has a deterrent effect to your competitors and may be part of your defensive strategy. If your competitor intends to sue you because of patent infringement, he will think twice about this plan if you have a large patent portfolio because there is a risk that you will strike back and sue him for infringement of one of your patents. In such cases, it is much easier to come to a mutual agreement, e.g. cross-licensing.
I hope that this article supports patent practitioners, decision makers in industry and other stakeholders to come to a well-founded decision of whether to file patent applications in the field of AI or not. Finally, I would like to draw your attention to WIPO`s excellent report on Artificial Intelligence 2019[11].

If you have any questions or comments, please write to me:
michaelfischer1978@web.de

SWISSCOGNITIVE

[10] *https://www.fulcrum.com/nortel_bankruptcy_patent_auction/*
[11] *https://www.wipo.int/publications/en/details.jsp?id=4386*