Kluwer Patent Blog

Patentability of AI and machine learning at the EPO

Sam Jones (GJE Intellectual Property) · Friday, December 21st, 2018

The European Patent Office (EPO) is receiving ever increasing numbers of patent applications that include a 'programmed computer' as a key part of the described invention. Moreover, this growth in filings is being seen in technical fields that are not traditionally considered to be computer-centric. For example, according to EPO statistics, 40% of new patent applications filed in the healthcare space have an AI or machine learning aspect to them.

In recognition of the increasing importance of AI and machine learning to applicants across the board, the EPO has taken the time in its 2018 update of the Guidelines for Examination to focus specifically on the patentability of inventions having an AI or machine learning aspect to them. This is a welcome update from the EPO that is likely to be well-received by applicants and attorneys alike.

The new Guidelines make clear that the EPO intends to treat AI and machine learning as a form of mathematical method. Mathematical methods appear on the list of non-inventions defined by Art. 52(2) EPC and so are inherently unpatentable 'as such'. However, a mathematical method that is tied to control of a technical system or process can gain technical character, moving it out of the 'as such' exclusion and into the domain of a patentable invention.

This has always been the position of the EPO when handling the exclusions to patentability, and so it is not surprising that the AI and machine learning section of the new Guidelines is largely business as usual. Inventions involving AI and machine learning will be patentable so long as they are described and claimed in the context of operation in a technical system or control of a technical process. Careful drafting will be sufficient to ensure that this requirement is met – describe and claim the AI or machine learning component in the context of the technical system in which it operates, not as an abstract entity, to obtain a granted European patent. AI or machine learning algorithms that are put to work in the context of non-technical systems, such as business processes, are not likely to be patentable.

As a brief aside it is worth noting that, according to Reasons 8 of T 1510/10, a decision of the EPO Technical Board of Appeal handed down in December 2013, the use of machine learning (and, by extension, one would assume AI) will not be enough by itself to render an invention patentable. That is, application of conventional machine learning or AI to solve a problem that is foreseeably solved by such techniques does not seem to be enough to demonstrate a technical effect, even if the problem that is being solved is technical.

So far, the update has provided a useful codification of EPO practice in this area, but nothing

ground breaking. However, in the final paragraph of the updated Guidelines lies a significant point, where it is stated:

Where a classification method serves a technical purpose, the steps of generating the training set and training the classifier may also contribute to the technical character of the invention if they support achieving that technical purpose.

This is a significant development as it may open the door to the possibility of obtaining European patent protection for methodologies for training AI or machine learning algorithms and also to mechanisms for generation of training datasets that are used in this training.

It appears that a European patent would in principle be granted to a method of training an AI or machine learning algorithm, or to a method of generating training data for this purpose, if it is possible to credibly link the method to a reliable and repeatable technical effect. For example, a training method that causes a neural network to converge more rapidly, or using a smaller dataset, may be found to solve a technical problem and thus qualify for European patent protection.

This seems to introduce an aspect of patent law that is usually only encountered in the pharmaceutical and biotech fields – plausibility. It may be possible to show that a particular untrained model converged more rapidly, say, when trained using a particular method and using a particular training dataset, but this evidence alone will be unlikely to be enough to make plausible a claim to the generalised use of this method with a generic untrained model and/or a generic training dataset.

Instead it would seem that generalisation of a claim to a training method would require identification of the specific feature or features that credibly enable the training method to achieve the technical effect in the case of a generic training dataset or generic untrained model, and in practice this may not be possible. This is a question that will need to be asked at the point of drafting a patent application directed to a training method, and it may be necessary to include in the application itself a number of working examples to support a claim of broad enough scope to be of commercial use to an applicant.

A similar consideration applies if directing a claim towards the generation of a training dataset. What are the feature(s) that such a training dataset must include in order to credibly achieve the technical effect that is relied upon for inventive step? Identification of the kernel of the invention in such cases may be very difficult or impossible, and the EPO's requirement to show plausibility may well restrict the scope of claim that an applicant can obtain in such a circumstance.

It is promising to see that the EPO recognises AI and machine learning as area of innovation that has the potential to generate patentable inventions. The practical effect of this remains to be seen, and many applicants will no doubt be watching developments in this space with interest.

The new Guidelines for Examination were published by the EPO on 1 October 2018 and came into force on 1 November 2018. The section relating to AI and machine learning is G-II §3.3.1 and is accessible on the EPO website here.

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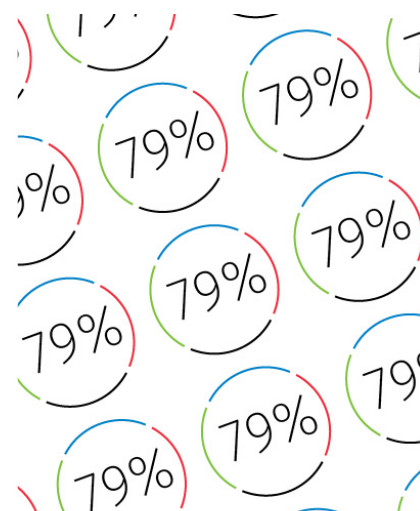
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