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European Patent Office Gives Guidance on Artificial Intelligence and Machine Learning

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For the first time, the European Patent Office (EPO) has issued guidance on the patentability of artificial intelligence and machine learning technologies. The guidance will become valid on 1 November 2018.

In order to receive a European patent for an invention, the invention needs to be novel, inventive and susceptible of industrial application. As part of meeting these requirements, the claimed subject-matter needs to have a technical character as a whole. The new guidance helps to assess whether inventions relating to artificial intelligence have the necessary technical character.

According to the new guidance, computational models and the algorithms that artificial intelligence and machine learning are based on are *per se* of an abstract mathematical nature, regardless of whether they can be "trained" on selected data sets. The inclusion of references to machine learning and/or artificial intelligence in the claimed subject-matter in isolation of other technical features is therefore unlikely to be enough to satisfy the EPO that an invention has the necessary technical character. For this reason, the use of terms such as a "support vector machine," a "reasoning engine" or a "neural network" in the claims is highly unlikely to cause the claims to cross the technical character threshold because the EPO feels that such terms usually relate to abstract models devoid of technical character.

What is not patentable?

The guidance gives two examples of applications of artificial intelligence and machine learning that do not have a technical character. The first is the classification of text documents solely in respect of their textual content, which was found to be a linguistic purpose rather than *per se* a technical purpose. The second is the classifying of abstract data records without any indication of a technical use being made of the resulting classification, which was found not to have *per se* a technical purpose, even if the classification algorithm may be considered to have valuable mathematical properties such as robustness.

So what is patentable?

The guidance also gives two examples of applications of artificial intelligence and machine learning that do have the necessary technical character. These are the use of a neural network in a heart-monitoring apparatus for the purpose of identifying irregular heartbeats and the classification of digital images, videos, audio or speech signals based on low-level features. In these examples, the neural network is not a purely abstract model. The neural network is being used to achieve a technical purpose, so the claimed subject-matter, as a whole, has technical character.

Furthermore, if the invention relates to a classification method that serves a technical purpose, this may be enough to provide a technical character. The steps of generating the training set and training the classifier may also contribute to the technical character of the invention if the steps support realising that technical purpose.

Key takeaways

The EPO's new guidance makes it clear that the use of artificial intelligence and/or machine learning technologies themselves is not enough to provide the technical character that the EPO looks for in order to grant a patent. However, a technical application of artificial intelligence and/or machine learning is likely to be considered to have a technical character if the application results in a solution to a technical problem. As is usual with European patent practice, it is necessary to include in the claims the technical features that solve the technical problem.

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