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# European Patent Office Issues New Guidelines on Artificial Intelligence and Machine Learning

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On November 1, 2018, the European Patent Office ("EPO") issued new guidelines for the patentability of artificial intelligence ("AI") and machine learning ("ML") inventions which indicate that applications within this subject matter may be treated as largely unpatentable. The new guidelines, G-II 3.3.1, provide that AI and ML are "based on computational models and algorithms for classification, clustering, regression and dimensionality reduction, such as neural networks, genetic algorithms, support vector machines, k-means, kernel regression and discriminant analysis." These "computational models and algorithms" are, according to the guidelines, "*per se* of an abstract mathematical nature."

Mathematical methods and purely abstract mathematical concepts are generally excluded from patentability under EPO guidelines. Chapter 3 of the EPO Guidelines for Examination provide the "List of Exclusions," which includes the exclusion for claims based on mathematical methods in section G-II 3.3. That the AI and ML guidance is provided within this section, as G-II 3.3.1, indicates that claims based on this subject matter will likely face default exclusion from patentability.

To the extent that any AI and ML claims will meet the exacting EPO patentability standards, the new AI and ML specific guidelines indicate that the "field of application" will be an important component in determining whether the mathematical method contributes to the technical character of an invention and is therefore patentable.

Under the general section on mathematical methods in G-II 3.3, the determination of whether a mathematical method of a claimed invention may contribute to the technical character of an invention is assessed under two possible situational criteria: (1) the mathematical method's "application to a field of technology" and/or (2) by being adapted to "a specific technical implementation". The guidance under G-II 3.3.1 makes no mention of the "specific technical implementation" but does indicate that the "application to a field of technology" will be an important indicator of a patent eligible technical purpose and provides several examples.

The AI and ML guidelines provide the following examples of patentable applications of mathematical methods to a "field of technology": "neural network in a heart-monitoring apparatus for the purpose

of identifying irregular heartbeats makes a technical contribution" and the "classification of digital images, videos, audio or speech signals based on low-level features (e.g. edges or pixel attributes for images)".

Conversely, the following applications to a "field of technology" would likely not be patentable: classifying text documents solely in respect of their textual content (which would likely not be regarded to be *per se* a technical purpose but a linguistic one); or classifying abstract data records or even "telecommunication network data records" without any indication of a technical use being made of the resulting classification (not *per se* a technical purpose, even if the classification algorithm may be considered to have valuable mathematical properties).

The new guidelines make clear that AI and ML inventions will face an uphill battle for patentability in the European Union. Inventors and organizations seeking to secure their inventions in this rapidly developing field will need to strategically evaluate what forum and means provide the optimum protection. Well informed and experienced counsel can craft claims that are organized with an awareness of these new EU guidelines as well as Alice Corp. v. CLS Bank that should survive examination and obtain allowance on both sides of the Atlantic.



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