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ARTIFICIAL INTELLIGENCE AND THE EUROPEAN PATENT OFFICE

The European Patent Office is paying close attention to artificial intelligence (AI). In December 2020 it organized a 2-day conference to discuss the impact of AI on intellectual property and the benefits AI brings to Patent Offices. This conference reflected the EPO's drive to redefine how it approaches the patentability of inventions relating to AI.

The EPO's position is that AI is a branch of computer science. Under EPO practice, inventions relating to AI are thus considered "computer-implemented inventions" (CII), i.e. inventions which involve computers, computer networks or other programmable apparatus, where at least one feature is realized by means of a program.

While the European Patent Convention (EPC) excludes computer programs "as such" from patent protection, this certainly does not mean that EPO will not grant patents for inventions involving software. In fact, the EPO will grant patents for all inventions involving software that have a technical character - as is, after all, the case for all patentable inventions irrespective of the technical field those inventions belong to.

The EPO Boards of Appeal have generated a significant body of case law setting forth unambiguous, stable and predictable principles for patenting computer-implemented inventions, including inventions that involve AI.

Specifically, the EPO grants patents for CII if they are novel, inventive and industrially applicable (again, as is the case for inventions in all other technical fields), and the invention's technical character plays an important role in assessing these requirements.

AI is based on mathematical algorithms and computational models which are, per se, abstract. However, the EPO will grant a patent when AI is applied to solve a technical problem in a field of technology. The EPO Guidelines for Examinations cite, as examples of such application of AI:

- a) the use of a neural network in a heart-monitoring apparatus for the purpose of identifying irregular heartbeats, and
- b) the classification of digital images, videos, audio or speech signals based on low-level features (e.g. edges or pixel attributes for images),

as in both cases the use of AI makes a technical contribution that is not of an abstract nature.

Furthermore, during the conference the EPO confirmed that a patentable, technical solution to a technical problem can also be present in those cases where the invention relates to a specific technical implementation of AI, i.e. where it is driven by technical considerations of the internal functioning of a computer. As an example, the EPO cites a specific technical implementation of neural networks using graphics processing units (GPUs).

AI can be applied in several fields of technology, e.g. medical devices, the automotive sector, aerospace, industrial control, additive manufacturing, communication/media technology including voice recognition and video compression, and of course computer, processor or computer networks themselves. As also confirmed at the conference, the EPO grants patents for the technical implementation of AI in all of these fields of technology.

The EPO's approach to the patentability of AI, as developed over the years and now strongly supported by the case law of the EPO Boards of Appeal, thus reflects the need to obtain protection for these increasingly more important and sophisticated inventions.