MARSHALL GERSTEIN

Protecting Artificial Intelligence Inventions, Workflow, and Data

Marshall Gerstein has been filing patent applications directed to artificial intelligence technologies for nearly twenty years.

In 2020, we saw a 43% increase in AI patents filed for our clients in industries such as insurance & financial services, information technology, process controls, and agronomics.

Although AI technologies are being developed in virtually every industry, the bulk of AI filings are sectors including telecommunications, transportation, personal electronic devices and computing, life and medical sciences, security, document management, manufacturing, and engineering. Key AI technologies include machine learning, computer vision, natural language and speech processing, control methods, planning and robotics, among many others.

Our attorneys regularly advise clients in protecting, maintaining, defending, enforcing, and transferring AI technologies. Our team includes attorneys, patent agents, and technical specialists, with computer and engineering degrees and backgrounds, who regularly prepare AI patent applications and assist clients in a variety of related matters, including freedom to operate opinions and licensing.

We have assisted clients with AI and IP matters in a variety of technologies and industries:

- Medical devices
- Pharmaceuticals
- Chemical analysis
- Autonomous driving
- Computer vision
- E-commerce
- Planning and scheduling
- Natural language & speech processing
- Deep learning for medical imaging
- Fitness tracking
- 2D and 3D imaging
- Electrocardiogram analysis
- Personal health
- Predicting disease progression
- Records processing

Artificial Intelligence Thought Leadership: PatentNext

Partner Ryan Phelan moderates PatentNext, a blog that focuses on developments and challenges in protecting next-generation and new age technologies, such as artificial intelligence and machine learning, with patents, trademarks, and copyrights. Blog topics include: authorship, claim construction, IoT, inventorship, metaverse, obviousness, software, and virtual reality, among many others. For more information, visit https://www.PatentNext.com/.

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How AI Works

Artificial Intelligence (AI) is fundamentally a data-driven technology that takes unique datasets as input to train AI computer models. Once trained, an AI computer model may take new data as input to predict, classify, or otherwise output results for use in a variety of applications. Machine learning, arguably the most widely used AI technique, may be described as a process that uses data and algorithms to train (or teach) computer models. The trained model allows the computer to make decisions without the need for explicit or rule-based programming. In particular, machine learning algorithms build a model on training data to identify and extract patterns from the data, and therefore acquire (or learn) unique knowledge that can be applied to new data sets.

Because of the reliance on data to train AI models, information and data sources are now an even more important and valuable resource. Companies that collect or store data (e.g., "big data"), incorporate information arising from the Internet-of-Things, or otherwise have large, unique datasets are typically well-positioned to develop or take advantage of AI technologies.

Protecting AI Inventions in the United States

AI inventions are generally patentable in the United States, however, because they involve computer and software-related features, care must be taken regarding the U.S. Supreme Court's subject matter eligibility test under 35 U.S.C. § 101, as provided in *Alice Corp. v. CLS Bank International*.

In general, in view of *Alice*, when considering AI inventions for patent protection, a patentee should focus on the unique technical features that may be identified in an AI-invention workflow and related components. These may include, for example:

- The pre-processing of training data (e.g., preparing unique datasets for input into a particular AI algorithm)
- The training process (e.g., improvements or adjustments to a machine-learning or neural network algorithm)
- The application of trained models (e.g., to control machines or to provide unique results)
- The hardware that executes a trained AI model, including any improvements to the hardware or its deployment in a given technical field

AI technology may also be protected by copyright, regardless of registration with the United States Copyright Office. For example, AI data that is arranged in a predetermined format to meet preprocessing concerns to train an AI model, would be subject to copyright upon being fixed in tangible form.

AI algorithms and data are entitled to state and federal protection as trade secrets. Maintaining the secrecy and restricted use of this information, however, requires a higher level of vigilance and procedures than apply to other types of confidential information.

Design patents may protect graphical user interfaces displaying the results of AI-assisted computations. Provided high quality screen shots of novel and non-obvious displays may provide adequate basis for design patent protection in the United States and abroad.