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The logo for the United States Patent and Trademark Office (USPTO). It features the lowercase letters "uspto" in a bold, sans-serif font. The letters are dark blue and are set against a white background that is shaped like a rounded rectangle. The "u" and "s" are on the left, and the "p", "t", and "o" are on the right. The "p" and "t" are connected, and the "o" is a simple circle.

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International symposium on patent examination practices on AI-related inventions

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USPTO patent examination

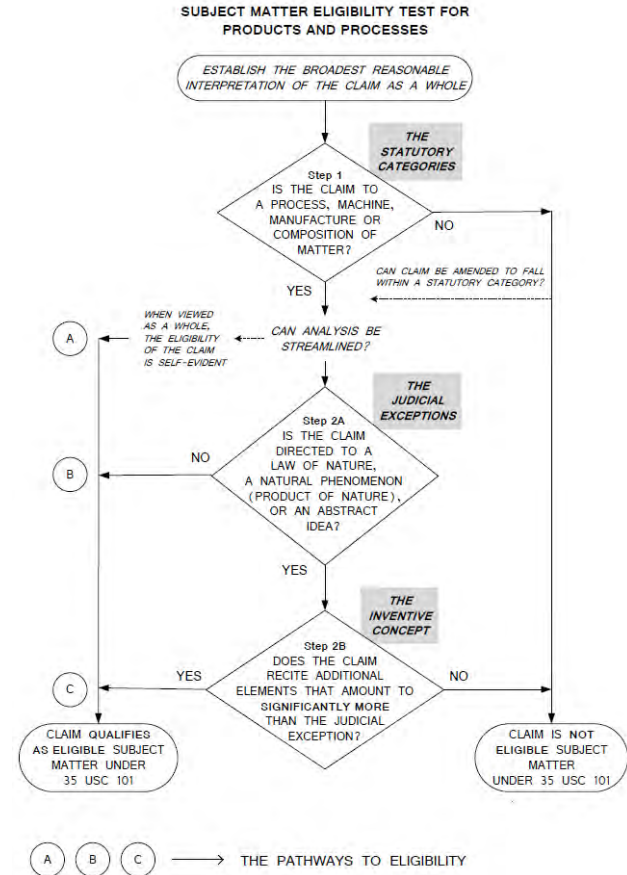
- Examiners practice “compact” prosecution
 - Review the specification to determine what the applicant has invented (and is seeking to patent) and how the claims relate to and define that invention;
 - Conduct a prior art search; and
 - Determine whether the invention as claimed complies with all statutory requirements (35 U.S.C. §§ 101, 112, 102, and 103).
- The scope of the claim determines whether the claim meets the statutory requirements.

USPTO claim interpretation

- During examination, claims are given their broadest reasonable interpretation (“BRI”) consistent with the specification as it would be interpreted by those skilled in the art.
- AI-related inventions often raise claim interpretation issues involving functional or result-oriented language.
 - A claim term is functional when it recites a feature by what it does rather than what it is.
 - Functional claiming often involves the recitation of some structure followed by its function.
 - Applicants may use means-plus-function language (35 U.S.C. § 112(f)), which recites function and relies on the specification to describe the structure, material, or act that performs the entire claimed function.
 - Result oriented claiming recites an intended goal rather than how the goal is achieved.

Overall eligibility analysis

- USPTO instructs examiners to:
 - Review the disclosure to identify what applicant considers as the invention.
 - Determine if the claim falls into a statutory category.
 - Evaluate the claim to determine if it qualifies as patent-eligible subject matter (Steps 2A & 2B).



Step 1: Statutory categories

- Evaluate whether the claim is directed to a process, machine, manufacture, or composition of matter.

Step 2: *Alice*/*Mayo* test

- A two-part test laid out by the U.S. Supreme Court in its *Alice* and *Mayo* decisions for evaluating whether a claim qualifies as patent-eligible subject matter.
 - Step 2A evaluates whether a claim is directed to a judicial exception.
 - Step 2B evaluates whether the claim amounts to significantly more than the judicial exception.

Step 2A: “Directed to” a judicial exception

- Step 2A is a two-prong inquiry:
 - Prong One evaluates whether the claim recites a judicial exception.
 - Prong Two evaluates whether the claim recites additional elements that integrate the exception into a practical application of the exception.
- Together, these prongs answer the first step of the *Alice/Mayo* test: whether the claim is “directed to” a judicial exception.

Step 2B: Significantly more than an exception

- Step 2B answers the second step of the *Alice/Mayo* test (whether the claim amounts to “significantly more” than a judicial exception).
- Evaluates the additional elements in the claim, both individually **and** in combination, to determine if they provide an inventive concept (aka “significantly more”).

Case 2-14: Subject matter eligibility

Title: Trained model for analyzing reputations of accommodations

- [Claim 1]
 - A trained model for causing a computer to function to output quantified values of reputations of accommodations based on text data on reputations of accommodations, wherein;
 - the model is comprised of a first neural network and a second neural network connected in a way that the said second neural network receives output from the said first neural network;
 - the said first neural network is comprised of an input layer to intermediate layers of a feature extraction neural network in which the number of neurons of at least one intermediate layer is smaller than the number of neurons of the input layer, the number of neurons of the input layer and the number of the output layer are the same, and weights were trained in a way each value input to the input layer and each corresponding value output from output layer become equal;
 - weights of the said second neural network were trained without changing the weights of the said first neural network; and
 - the model causes the computer function to perform a calculation based on the said trained weights in the said first and second neural networks in response to appearance frequency of specific words obtained from the text data on reputations of accommodations input to the input layer of the said first neural network and to output the quantified values of reputations of accommodations from the output layer of the said second neural network.

Written description requirement of § 112(a)

- The specification must describe the claimed invention in sufficient detail such that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention at the time of filing.
 - The specification must provide a sufficient description of an invention, not merely an indication of a result that one might achieve.
- The level of detail required varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology.
 - While information that is well known in the art need not be described in detail; sufficient information must be provided to show that the inventor had possession of the invention as claimed.
- The scope of the claim is compared with the scope of the description to determine whether applicant has demonstrated possession of the claimed invention.

Written description for result-oriented limitations

- For computer-implemented functional claims, the determination of the sufficiency of the disclosure requires an inquiry into the sufficiency of both the disclosed hardware and the disclosed software due to the interrelationship and interdependence of computer hardware and software.
- When examining computer-implemented, software-related claims, examiners determine whether the specification discloses the computer and the algorithm(s) that achieve the claimed function in sufficient detail such that one of ordinary skill in the art can reasonably conclude that the inventor possessed the claimed subject matter at the time of filing.
 - The specification must describe how the claimed function is achieved.
 - It is not enough that one skilled in the art could theoretically write a program to achieve the claimed function, rather the specification itself must explain how the claimed function is achieved.

Enablement requirement of § 112(a)

- The specification must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation.
 - In determining whether experimentation is undue, the examiner considers many factors called the “Wands” factors.
- The scope of the claims must not exceed the scope of enablement provided by the specification.
 - The subject matter encompassed by the claim is determined by considering the claim as a whole.
- Not everything necessary to practice the invention need be disclosed.
 - A specification need not disclose what is well known in the art. However, applicant cannot rely on the knowledge of one skilled in the art to supply information that is required to enable the novel aspect of the claimed invention when the enabling knowledge is in fact not known in the art.
 - This is of particular importance with respect to computer-implemented inventions due to the high level of skill in the art and the similarly high level of predictability in generating programs to achieve an intended result without undue experimentation.

Case 34: 35 U.S.C. 112(a) analysis

Title: Estimation system of hydroelectric generating capacity

- [Claim 1]
 - An estimation system of a hydroelectric power generating capacity of a dam comprising:
 - a neural network that is built by means of an information processor, the neural network having an input layer and an output layer, in which an input data to the input layer containing a precipitation amount of the upper stream of a river, a water flow rate of the upper stream of the river, and a water inflow rate into a dam during a predetermined period between a reference time and a predetermined time before the reference time, and an output data from the output layer containing a hydroelectric power generating capacity in the future after the reference time;
 - a machine learning unit that trains the neural network using a training data corresponding to actual values of the input data and the output data; and
 - an estimation unit that inputs the input data to the neural network that has been trained by the machine learning unit with setting a current time as the reference time, and then calculates an estimated value of a future hydroelectric power generating capacity based on the output data of which reference time is the current time.
- [Claim 2]
 - The estimation system of a hydroelectric power generating capacity as in Claim 1,
 - wherein the input data to the input layer further contains a temperature of the upper stream of the river during the predetermined period between the reference time and the predetermined time before the reference time.



Thank you!

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