JPO Case Examples for AI related inventions

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Today's Topics

1. **Eligibility for Patent**
2. **Description requirements**
   - Support Requirement
   - Enablement Requirement
3. **Inventive Step**

Eligibility for Patent

Cases related to:

- Data
- training data Case 5 Case 3-2
- data structure Case 2-13
- Training models Case 2-14

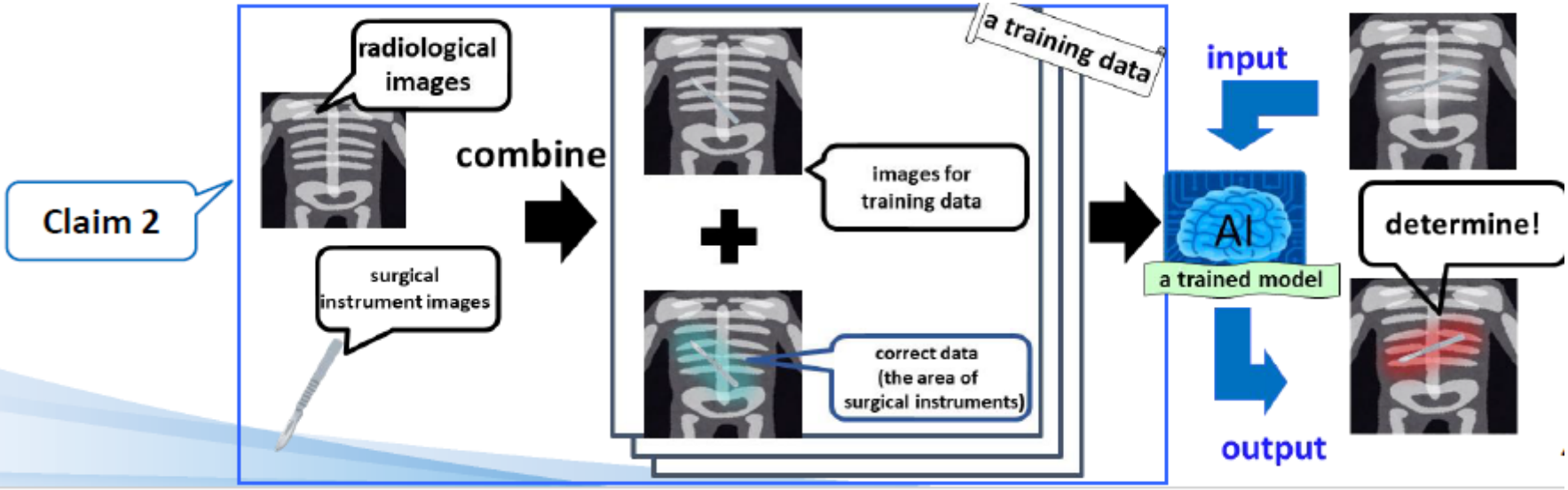
Eligibility for Patent

Key Question

- Does the claim include any recitation of **software and hardware working together** ?

Eligibility (Case 5)

- [Claim 1] Training data for training a discriminator, the training data consisting of images for training data generated by combining surgical instrument images indicating surgical instruments with radiological images including the human body, and correct data indicating the area of surgical instruments in the images for training data, wherein when radiological images including the human body are input, the area of surgical instruments in the input radiological image is determined.
- → not eligible
  ∵ The “training data itself” is **a mere presentation of information** .



- [Claim 2] A method for generating images for training data for training a discriminator that determines the area of surgical instruments in target images when the target images are input, the method comprising a step of obtaining radiological images including the human body and surgical instrument images indicating surgical instruments; and a step of generating images for training data corresponding to the target images by combining the surgical instrument images with the radiological images, **performed by an image generation device for training data**.
- → eligible
  ∵ concretely realize information processing by **software and hardware working together**

Eligibility for Patent

- Satisfy the requirement that the software and hardware working together
- Not a mere presentation of information

Description requirements

Cases related to:

- A product presumed to have a certain function by AI Case 52
- Creation of training data Case 53

- Application of AI

  a correlation between multiple types of data included in a training data

- …….is **a common general technical knowledge** at the time of filing. Case 46 Case47 Case48 Case 54
- …….is **supported by explanations and statistical information stated in the description**, etc. Case 49
- …….is **supported by the performance evaluation of the artificial intelligence model actually created**. Case 50

Description requirements

Key Questions

- Does the specification include evidence for a product presumed by AI to have a certain functionality?
- Are the "AI subject to machine learning" and the "content of the training data for machine learning" recited in the claims?
- Does the claim recite an input-output relationship of each data included in the training data?

Enablement+Support(Case 52)

- [Claim 1] A fluorescent compound having luminescence properties with an emission peak wavelength equal to or greater than 540 nm and equal to or less than 560 nm and a fluorescence lifetime equal to or greater than 5 μs and equal to or less than 20 μs.
- [Claim 2] The fluorescent compound according to claim 1, wherein the compound is compound A.
- [Claim 3] The fluorescent compound according to claim 1, wherein the compound is compound B.

→only Claim2　satisfies Enablement+Support

In the description…..

◆ a plurality of novel compounds (e.g., A, B) expected to have a certain property were predicted by machine learning

◆ only the properties of compound A were verified by actual experiment
=Working example for compound A not compound B

◆ only the production method of compound A is described

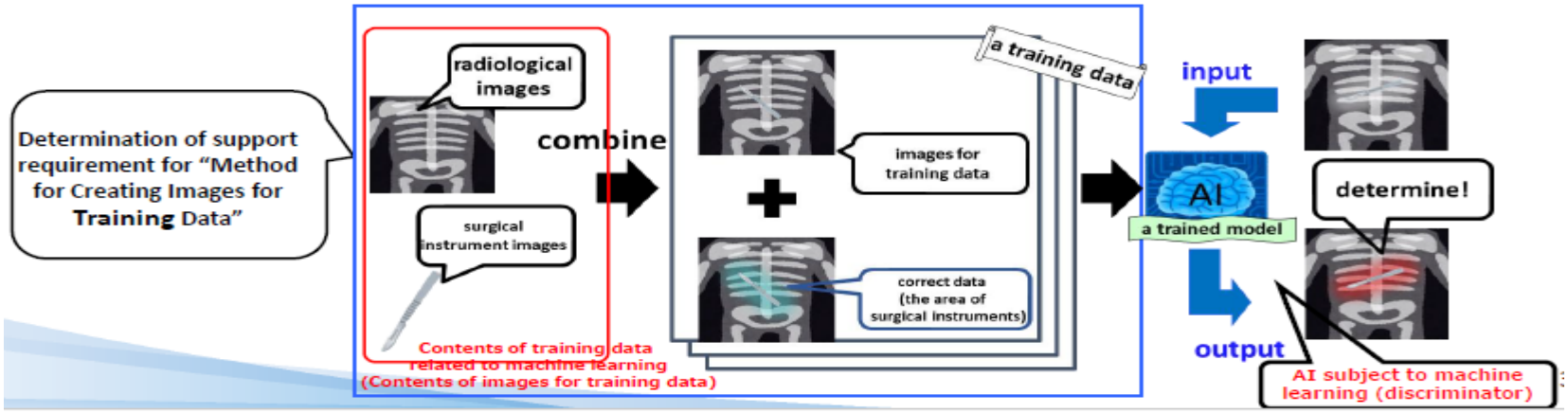
Support (Case 53)

[Claim 1] A method for generating composite images, comprising a step of obtaining radiological images including the human body and surgical instrument images indicating surgical instruments; and

a step of generating composite images by combining the surgical instrument images with the radiological images, performed by an image generation device.

[Claim 2]A method for generating images for training data for training a discriminator that determines the area of surgical instruments in target images when the target images are input, the method comprising a step of obtaining a first image and a second image which are radiological images; and

a step of generating images for training data corresponding to the target images by combining the second image with the first image, performed by an image generation device for training data.



Support (Case 53)

[Claim 3]A method for generating images for training data for training a discriminator that determines the area of surgical instruments in target images when the target images are input,

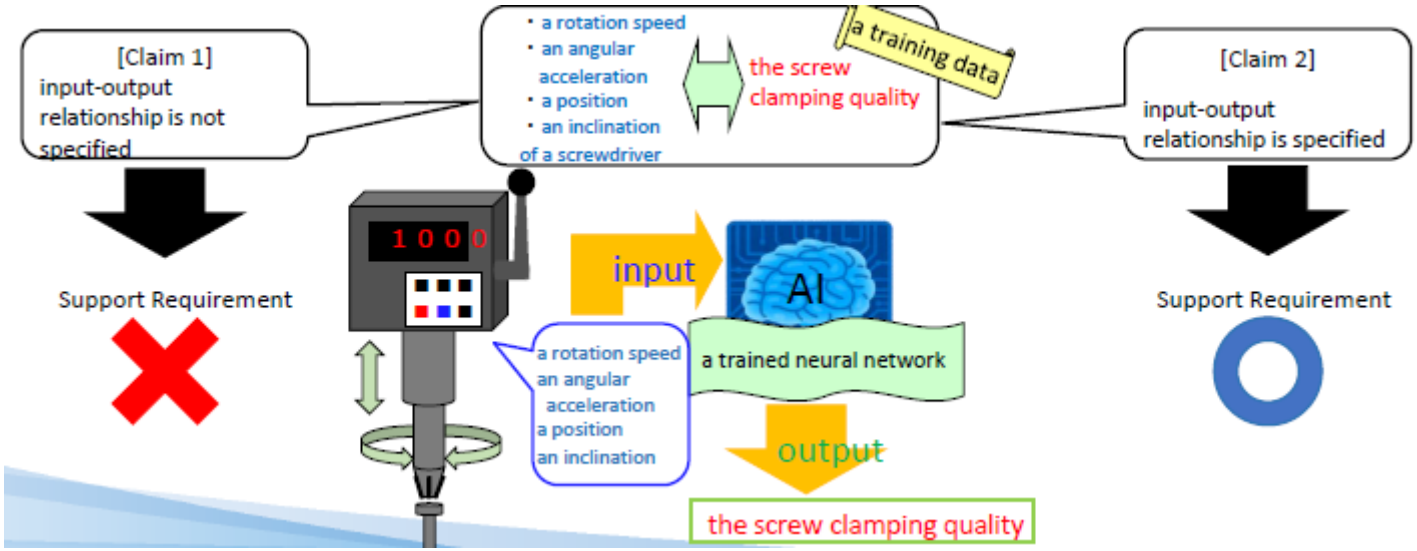
the method comprising a step of obtaining radiological images including the human body and surgical instrument images indicating surgical instruments;

and a step of generating images for training data corresponding to the target images by combining the surgical instrument images with the radiological images, performed by an image generation device for training data.

- → satisfy support requirement
  ∵ Both “the content of training data for machine learning” and “the AI subject to machine learning” are recited.

Support (Case 54)

- [Claim 1] A machine learning apparatus for training a neural network through machine learning, comprising a machine learning unit that trains a neural network through machine learning by **associating** a rotation speed of a screwdriver, an angular acceleration of the screwdriver, a position of the screwdriver, an inclination of the screwdriver, and the screw clamping quality clamped by the screwdriver.
- → violate support requirement
  ∵ input-output relationship is not specified



- [Claim 2] A machine learning apparatus for training a neural network through machine learning, comprising a machine learning unit that trains a neural network through machine learning by **associating** a rotation speed of a screwdriver, an angular acceleration of the screwdriver, a position of the screwdriver, and an inclination of the screwdriver **as input data** with the screw clamping quality clamped by the screwdriver **as output data**.
- → satisfies support requirement
  ∵ **input-output relationship** is specified

Description requirements

For a product invention found by AI

- (1) evaluation of a product actually manufactured is stated in the description, etc.,
  (2) the estimation accuracy of the predicted value indicated by AI is verified in the description, etc.,
  (3) the common general technical knowledge that the AI estimation result can replace the evaluation of the product actually manufactured was available at the time of filing.

For training data creating invention

- the “AI subject to machine learning” and the “content of the training data for machine learning” are sufficiently specified in the claims

For the application of an AI invention

- The input-output relationship of each data included in the training data is specified in the claims

Inventive Step

Cases related to:

- generative AI application Case 38 Case 37
- simple systematization of human tasks Case 40 Case 33
- change in the means of estimation Case 39 Case 34
- modification of training data Case 34 Case 35
- preprocessing of training data Case 36

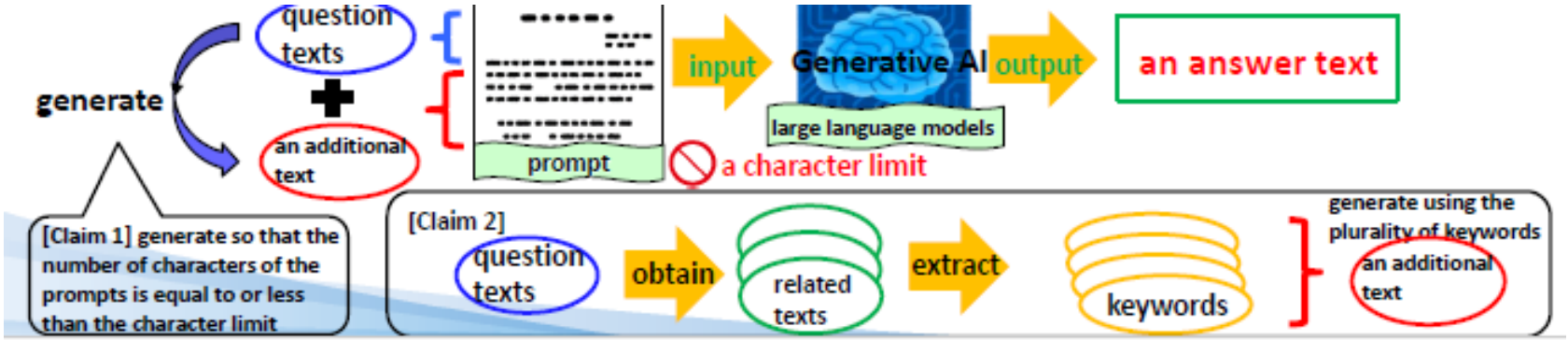
Inventive Step

Key Questions:

- What is the feature not found in conventional technology?
- What is the advantage of that feature?

Inventive Step (Case 38)

- [Claim 1] A method for generating texts for prompts, which are generated by a computer for input into large language models by adding reference information to an input question texts,
  wherein the large language models have a character limit, which is the maximum number of characters in a prompt that can be input,
  and when a prompt containing a question text is input, the large language models output an answer text relating to the question text, and wherein the method for generating texts for prompts executes
  an additional text generation step of generating an additional text related to the question text based on the input question text so that the total number of characters including the number of characters of the question text is equal to or less than the character limit,
  and a prompt generation step of generating the prompt by adding the additional texts generated by the additional text generation step to the input question text as reference information.



- [Claim 2] The method for generating texts for prompts according to claim 1, wherein the additional text generation step is a step of obtaining a plurality of related texts related to the question text based on the input question text, extracting a plurality of keywords suitable as reference information from the obtained related sentences, and generating the additional text in which the total number of characters does not exceed the character limit using the plurality of keywords.
- → Has Inventive Step
  ∵the effect of the methods by which prompts with additional texts that are highly relevant to the question text and suitable as reference information can be generated within a predetermined character limit, thereby obtaining more reliable and appropriate answer texts can be understood

Inventive Step

Finding Inventive Step:

- Features in the application of generative AI
- New features added to a simple systematization of human tasks using artificial intelligence
- A difference in the **learning method** of a trained model,
- A difference in **training data** or the **preprocessing** of training data

Summary

For Eligibility for Patent

- **software and hardware working together**

For Description requirements

- **Practical evidence** for a product by AI
- Creating training data claim includes **the "AI subject to machine learning" and the "content of the training data for machine learning"**
- The application of an AI claim includes **input-output relationship of each data**

For Inventive Step

- **An advantageous feature not found in conventional technology**

Thank you for your kind attention!

Disclaimer:The content of this presentation is intended to provide a quick and general overview. It reflects the author's subjective view and does not constitute legal advice. Legal advice on individual cases under Japanese law is exclusive to our legal professionals of those respective jurisdiction(s) within individual client – attorney relationships.

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