Japan Patent Attorneys Association

JPO update on AI-related inventions

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Agenda

1. Numbers
2. JPO Initiatives to Improve Examination Quality and Efficiency of AI-Related Inventions
3. Hypothetical cases in JPO Examination Handbook

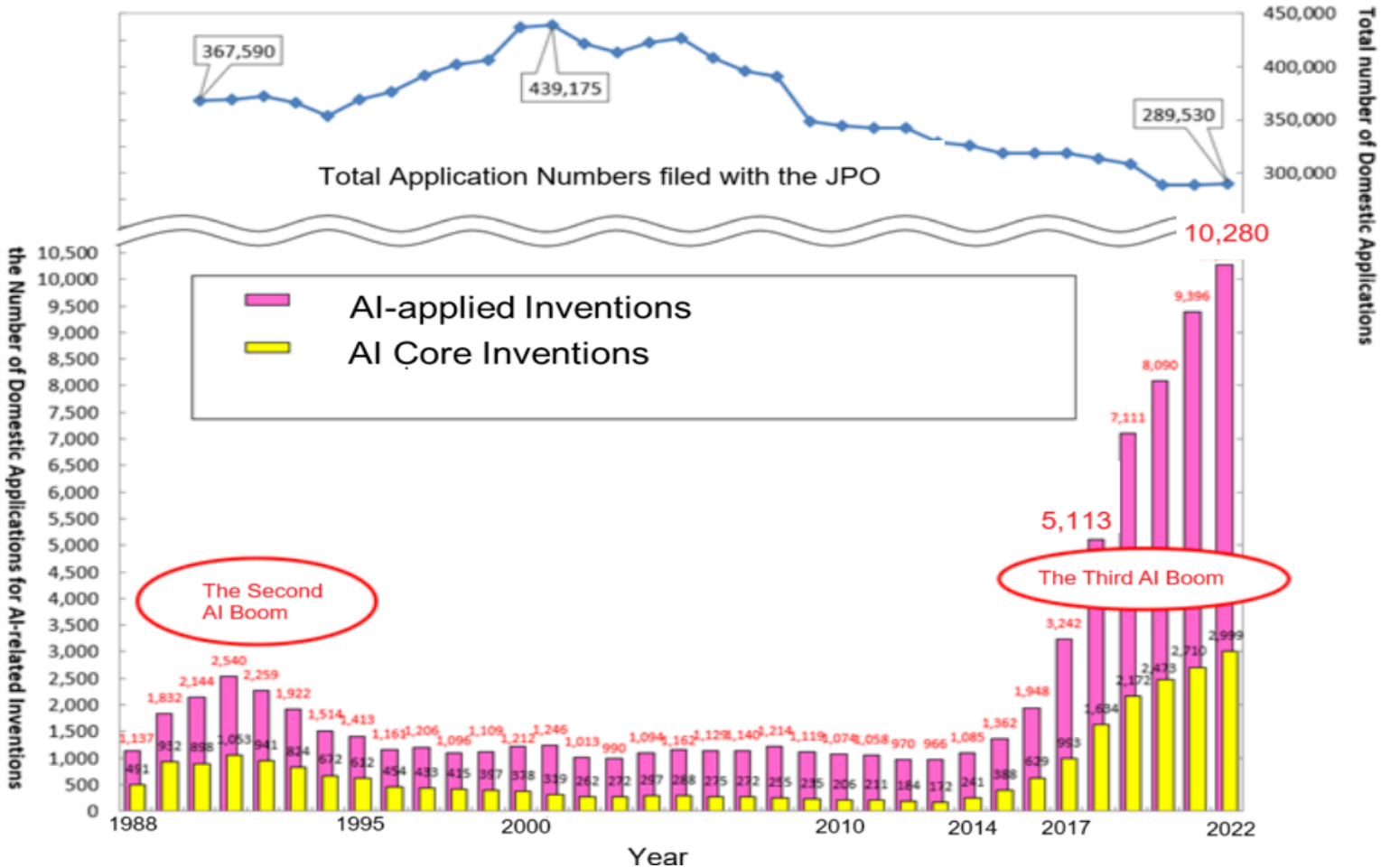
3-1. Eligibility

3-2. Description Requirement

4. Additional Information - Interview with the Examiner -

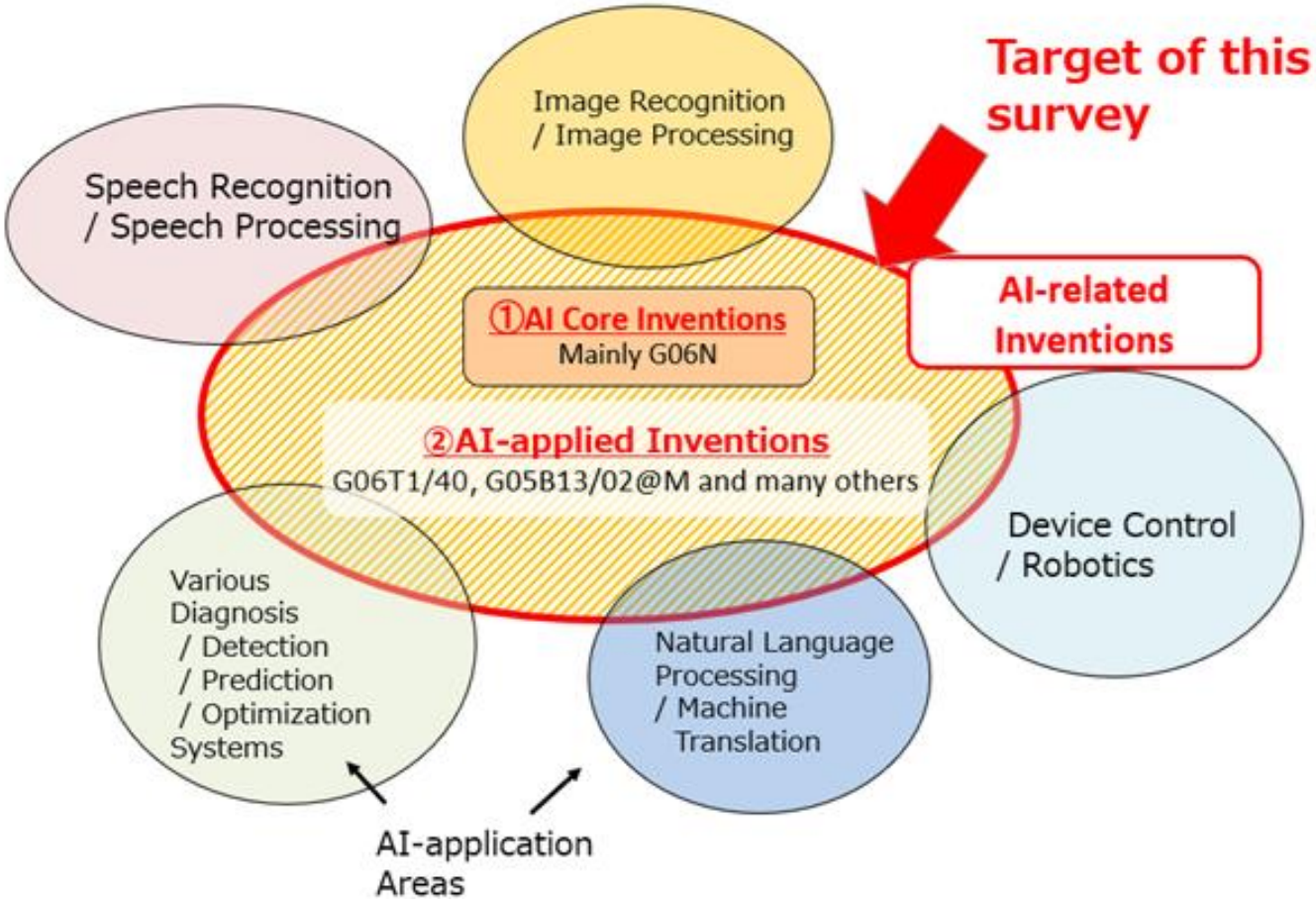
1. Numbers

Figure 1: Comparison between the Total Patent Application Numbers and AI-related Patent Application Numbers



Source: JPO report of Oct. 2024 published in English as of Dec. 2024.
www.jpo.go.jp/e/system/patent/gaiyo/ai/ai_shutsugan_chosa.html

1. Numbers


Target of this survey
Image Recognition / Image Processing
Speech Recognition / Speech Processing
①AI Core Inventions
Mainly G06N
AI-related Inventions
②AI-applied Inventions
G06T1/40, G05B13/02@M and many others
Device Control / Robotics
Various Diagnosis / Detection / Prediction / Optimization Systems
Natural Language Processing / Machine Translation
AI-application Areas

2. JPO Initiatives to Improve the Examination Quality and Efficiency of IA-Related Inventions

Jan. 2021 JPO AI Examination Support Team Launched
Oct. 2023 40 AI experts for helping the examination deployed in all technical fields
Apr. 2024 AI-related external support (universities, research centers) prepared for questions by the JPO examiners or presenting seminars

https://www.meti.go.jp/english/press/2023/0921_001.html

3. Hypothetical cases in JPO Examination Handbook

The JPO added hypothetical cases pertinent to AI-related inventions (updated in March 2024) to better explain how AI-related applications should be examined.

Case Examples pertinent to AI-related technologies (Full Text) (PDF:1,990KB)

3-1. Eligibility

◆ The patent eligibility of an AI-related Invention is examined in the same way as that of computer/software-related inventions (since 2002).

◆ “A program” is considered eligible, if the computer processing is achieved by software (program) and a hardware working together in the claim.

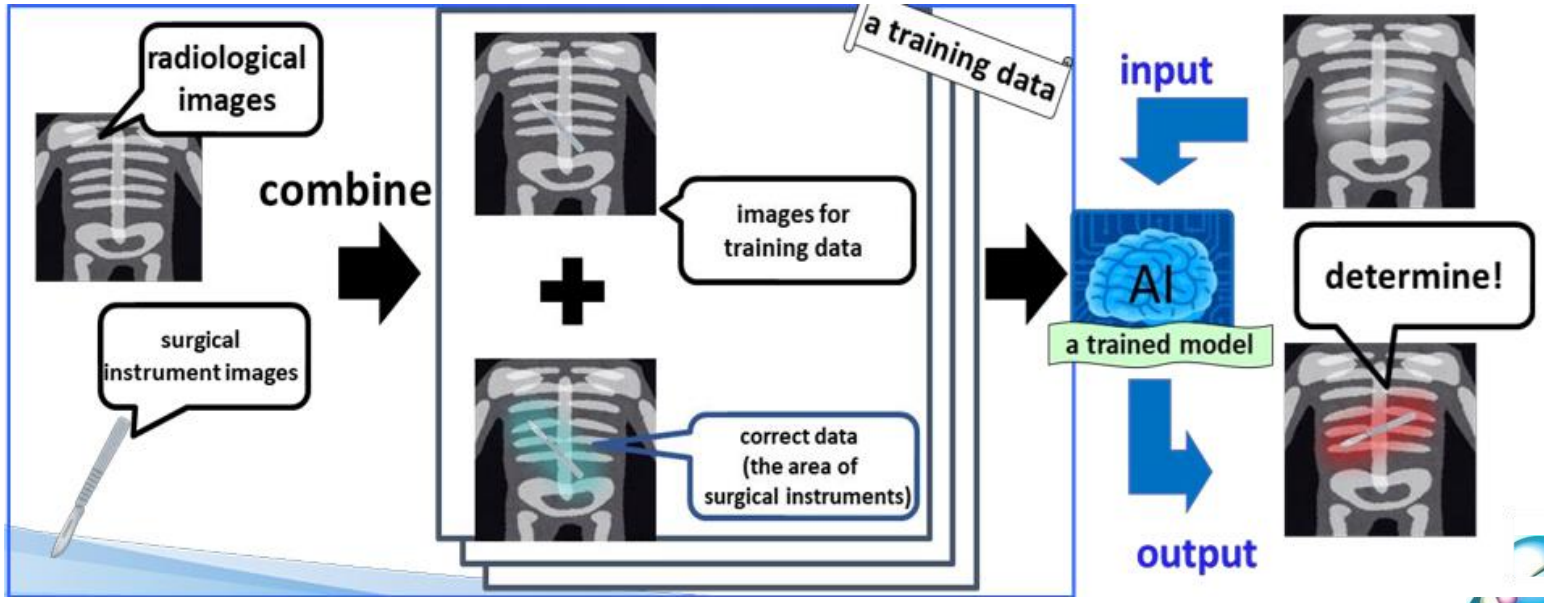
◆Claims directed to a “module”, “library”, “neural network”, “support vector machine”, “model” would be examined in the same way as program claims, if they are clearly taken as a program.

3-1. Eligibility

［Case 5］Training Data and Method for Generating Training Data Images Therefor

Technical Background: It is necessary to determine whether a surgical instrument has been left in a human body after surgery.

<Solution>



3-1. Eligibility

Claim 1

Training data for training a discriminator, comprising:

training data images generated by combining a radiological images including a human body with a surgical instrument image; and

correct data representing a region of the surgical instrument in the training data images;

the training data being configured to train a discriminator to identify a region of the surgical instrument in an input radiological image including a human body.

"Not Patent Eligible"

Mere Presentation of Information

3-1. Eligibility

Claim 2 **A method for generating training data images** for training a discriminator to identify a region of a surgical instrument in input target images, the method **comprising**:

a step 1 of obtaining radiological images including human body images and surgical instrument images; and

a step 2 of generating training data images corresponding to the input target images by combining the radiological images with the surgical instrument images,

the <u>step 1 and the step 2 being performed by a training data image generation apparatus.</u>

"Patent Eligible"

Information processing performed through concrete procedures by software and hardware resources working together

3-2. Description Requirement

◆ In the examination, the JPO Examiners read not only the claims but also the description, and closely check the description requirement (enablement and support requirement).

◆ Support requirement is considered satisfied, when the claimed invention is "substantially" supported by the description, regardless of the literal consistency between the claimed wordings and the description.

3-2. Description Requirement

［Case 49］ Body Weight Estimation System

Claim 1 A body weight estimation system, comprising:

(a) **a model generation unit configured to generate an estimation model for estimating a body weight of a person based on a feature value extracted from a facial image** and **a body height** of the person, ...

(b) **a processing unit** configured to .....**output an estimated body weight using the estimation model.**

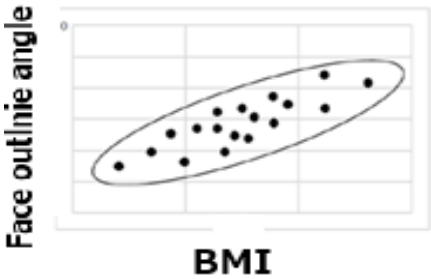
3-2. Description Requirement

The specification only explains:
a statistically significant "correlation" exists between
a cosine of **a face-outline angle** and **BMI** of a person.

Fig. 1

Face outlnie angle

Fig. 2



$$BMI = \frac{\text{weight (kg)}}{\text{height (m)}^2}$$

Claim 1
" Violation of Enablement and Support Requirement"

"face-outline angle" in the description, is only a part of
"a feature value extracted from a facial image" in the claim.

3-2. Description Requirement

Claim 2 A body weight estimation system of Claim 1, wherein <u>the feature value representing a facial shape is **a face-outline angle**.</u>

“Enablement and Support Requirement satisfied”

The Specification discloses statistically significant “correlation” between a cosine of **a face-outline angle** and BMI **.**

3-2. Description Requirement

Materials Informatics

◆ JPO Examination handbook introduced an example how to examine “materials informatics” (MI) cases.

<Materials Informatics>

It is possible to predict materials, such as chemical compounds, with desired properties.

3-2. Description Requirement

[Case 52]　Fluorescent Compound

Background

◆ Fluorescent compounds are used for light emitting materials of organic EL elements, and various compounds having different chemical structures are known.

◆ Fluorescent compounds having an emission peak wavelength in the range of 540 nm to 560 nm and a fluorescence lifetime in the range of 5 μs to 20 μs were unknown.

3-2. Description Requirement

Claim 1 A fluorescent compound having luminescence properties with an emission peak wavelength in the range of 540 nm to 560 nm and a fluorescence lifetime in the range of 5 μs to 20 μs.

Claim 2 The fluorescent compound of claim 1, wherein the compound is compound A.

Claim 3 The fluorescent compound of claim 1, wherein the compound is compound B.

3-2. Description Requirement

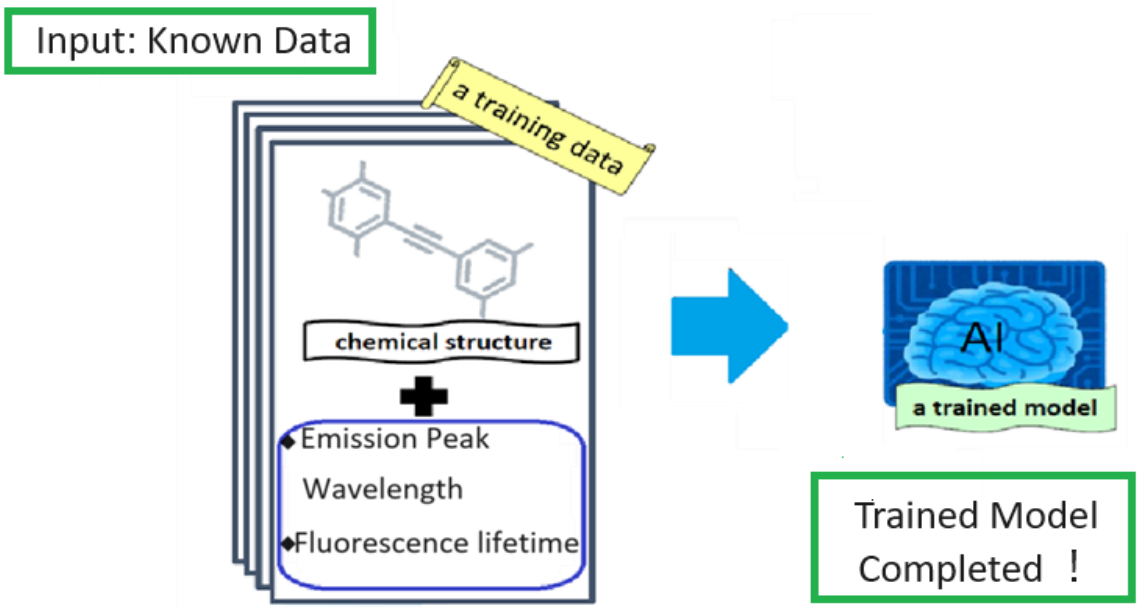
Example 1 (step 1)

Preparation of a “Trained Model” by machine learning.

Input of known data:

(1) Structures of known compounds

(2) Fluorescent properties of the known compounds



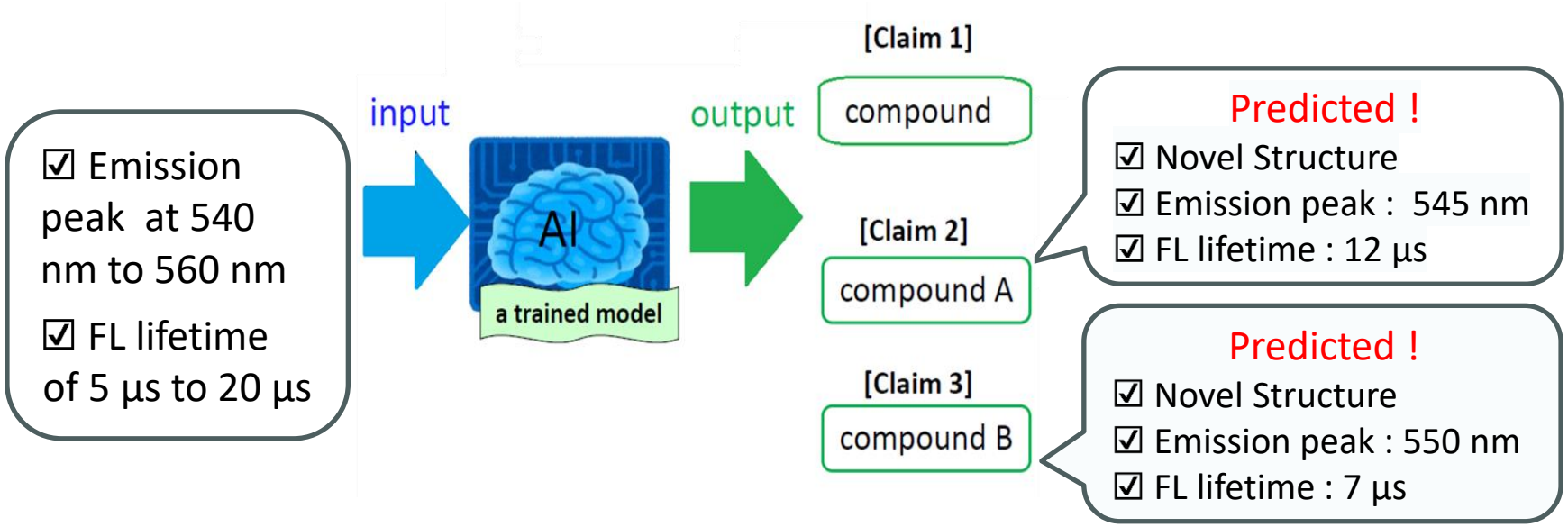
3-2. Description Requirement

Example1（step 2)

Prediction of Claimed Compounds by the Trained Model.

◆Desired fluorescent properties were input to the trained model.

➡ The Structures of Novel Compounds were predicted.



3-2. Description Requirement

Example 2

◆ Example 2 discloses the manufacture of Compound A (claim 2), and the determined the fluorescence properties.

Emission peak of 545 nm !
FL lifetime of 12 μs !

◆ No further examples were disclosed.

Claims 1 and 3
" Violation of Enablement and Support Requirement"
"Predictions" cannot substitute actual synthesis and determination of the compounds.

Claim 2 "Enablement and Support Requirement satisfied.

4. Additional Information

- Interview with the Examiner is often helpful in achieving an effective examination.
- JPO Examiners are open to:

(1) interviews at the JPO building

(2) on-site interviews, in which the Examiner travels to the applicant's location to conduct an interview upon request, which can be beneficial for showing the product or factory to the Examiner

(3) online interview (Telephone / Web Meeting)

- Examiners may provide valuable hints.

Thank you!!

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