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Chapter 12 Computer Software Related Inventions

1. Introduction

Where the use of computer software is necessary for the implementation of an claimed invention, the invention is a computer software related invention, and the provisions of this chapter shall apply.

For the examination of computer software related inventions, general provisions common to other chapters shall refer to other chapters. Matters that require separate determination and handling due to the particularity of the technical field of computer software related inventions are explained in this chapter.

The cases listed in this chapter are only set up to illustrate the general guidelines rather than dictate models for drafting the description, and are only meaningful regarding the specific issues explained; it may not be inferred that the exemplary cases have met other patentability requirements.

2. Description and Claims

2.1 Recitation Principle of the Description

2.1.1 Enablement Requirements

Regarding the determination of enablement requirements for computer software related inventions, the provisions of Section 1.3.1 of Chapter 1 shall apply. That is to say, the description should clearly and fully describe the claimed invention, and the terms used therein should also be clear, so that a person ordinarily skilled in the art may, based on the description, claims, and drawings as a whole, and with reference to the general knowledge at the time of filing, understand the content of the invention disclosure, so as to make and use the patented invention to solve problems and produce desired effects without undue experimentation.

Patent Act §26.I

In the field of computer software technology, the claimed invention is often defined by its function. In order to enable a person ordinarily skilled in the art to which the invention pertains to practice the claimed invention, the description should clearly and fully describe the relevant technical content (such as an algorithm) to realize the function, and may be supplemented by flowcharts or functional block diagrams in the drawings for illustration. When necessary, the disclosure may be supplemented by data flowcharts,

virtual codes, timing diagrams, code fragments, etc., to disclose technical features thereof. If the drawings are represented by a flow chart, the description shall describe each step of the method in accordance with the operation sequence of the flow chart. If the drawings are represented by a functional block diagram, the description should describe the relationship between the software modules and the hardware components or the connection between the hardware components in the functional block diagram. For specially designed hardware, the logic circuit structure of the components must be more clearly defined, so that a person ordinarily skilled in the art may understand the technical means to solve the problem according to the description and implement it accordingly.

If the claimed invention is a newly created special software or a special software not known to those in the technical field, its implementation should be described in the description, so that a person ordinarily skilled in the art may understand and carry out the content of the invention accordingly.

In addition, if its functions are realized by means of specific software or hardware tools or architectures, such as specific programming languages, function libraries, integrated development environments (IDEs), tool suites, databases, (artificial) neural network models, etc., whether the invention is commercial or open source should be disclosed in the description. For example, if the claimed invention is implemented by a commercial chip and the associated development software package, then the relevant content sufficient to specify the commercial chip and the development software package should be disclosed in the description, e.g., the name and model of the chip, and the name and version of the development software package and other technical contents sufficient to enable a person ordinarily skilled in the art to carry out the invention according to the contents of the description.

2.1.2 Examination for Failure to Meet the Enablement Requirements

Failure to meet the enablement requirement occurs if the process steps or functions in the description are only written in a rough or generic manner, or are only described in their functions or results, such that a person ordinarily skilled in the art is still unable to understand the construction of the hardware components or software modules.

In principle, the description of software and hardware related to computer software should use technical terms or proper nouns commonly used in the technical field to which the invention belongs. However, technology in the field of computer software evolves rapidly, and new terms

appear frequently. These new terms should be clearly defined in the description. If uncommon technical terms, ellipses, or symbols are used without proper definition, the indefiniteness of the terms may lead to violation of enablement requirements.

Failure to meet the enablement requirements occurs if the embodiments of the description only describe the claimed invention with respect to abstract methods or functions, without reciting the technical means of how to perform or implement the associated steps or functions through software or hardware, such that a person ordinarily skilled in the art cannot, on the basis of the description, claims, and drawings as a whole, as well as the general knowledge at the time of filing, understand how to carry out the claimed invention. For example, for a claim that recites an information processing system that executes mathematical formula's solutions, business methods, or rules of gaming, if the corresponding description does not clearly describe the relevant technical means about how to implement the method or rules by means of software or hardware, and a person ordinarily skilled in the art is not able to carry out such with reference to general knowledge at the time of filing, the description fails to meet the enablement requirements.

When the claim recites means or step plus function expressions, the method of determining whether the description meets the enablement requirements is provided as follows:

For computer software related inventions written in means (steps) plus function language, if generic functions are recited, such as means for storing and transmitting, the disclosure of general-purpose computers or processors in the description may be sufficient to enable the correspondingly disclosed structure. However, a disclosure should not be kept indefinite just because a general-purpose computer or processor can be easily inferred by a person ordinarily skilled in the art. Otherwise, the construction of the means in the claim would lack correspondence, which often results in the description failing to meet the enablement requirements.

If other specific functions are recited, the corresponding structures disclosed in the description should not only be general-purpose computers or processors, but must also include algorithms that can achieve the specific functions, and the algorithms must be fully disclosed in the description, so as to enable the general-purpose computer or processor to perform the specific function upon programming. Algorithms may be presented in any comprehensible manner, such as through flow charts, narrative sentences, mathematical expressions, or other means that provide sufficient structure.

But the listing of full code or great detail of the algorithms is not required.

Merely repeating in the description the names of the claimed means and functions, or simply describing the desired result to be achieved rather than the manner in which the result is achieved, is not deemed to definitely disclose the algorithm. If the description only recites the term of a specific purpose computer, e.g., "bank computer," or some "black box" that is in fact merely designed to perform the recited function, e.g., undefined computer system units (such as an access control management module), logic, code, or component, etc., it does not satisfy the enablement requirements. It is necessary to describe in detail how the computer or processor operates to execute the function recited in the claim.

The degree to which the description discloses the algorithm must be such that a person ordinarily skilled in the art clearly knows how to design the program, that is, it is at least required to disclose the necessary steps or flows of the algorithm, so that a person ordinarily skilled in the art can implement the algorithm accordingly and achieve the claimed function. Even if the algorithm for implementing the recited function can be easily deduced by a person ordinarily skilled in the art based on general knowledge at the time of filing, in order for the description to correspond to the means (steps) plus function language in the claim, the description should still clearly and fully disclose the associated algorithm.

Because the construction of means (steps) plus function language in the claims calls for the inclusion of the corresponding structure, material, or action of the function recited in the description and the equivalence thereof, when the description fails to meet the enablement requirements, the claims will be indefinite and unsupported by the description.

2.2 Claims

2.2.1 The scope of claims

For computer software related inventions, the applicant may define the claimed invention by means of a method claim or a product claim.

2.2.1.1 Method Claims

For method claims of a computer software related invention, the steps or procedures to be executed or processed shall be recited in accordance with process flow or time sequence.

Example 1

[Claim]

A method for processing daily transaction information of an enterprise, comprising the following steps:

reading information entered from a client computer, the entered information at least including date of transaction, accounting subject, and transaction amount;

accessing an electronic general ledger form in an accounting database;

comparing whether a total amount in a general ledger debit field is equal to a total amount in a credit field;

when the total amount of the debit field is equal to the total amount of the credit field, displaying on a display device a daily electronic general ledger form of the enterprise; and

when the total amount of the debit field is not equal to the total amount of the credit field, displaying on the display device a warning message and an electronic balance ledger form for each account of the enterprise's daily transactions.

2.2.1.2 Product Claims

For inventions related to computer software, a product claim does not need every feature to be a structural limitation, but can be defined by the function that it can achieve. Examples are as follows:

(1) Device or System Claims

Example 1

[Claim]

A device capable of filtering and searching for mail, the device comprising:

a storage unit formed by a flash memory and a secure digital memory card;

an LCD panel display unit; and

a digital processing device, connected to the LCD panel display unit;

wherein email stored in the storage unit are filtered out by the

digital processing device according to a configured email filtering rules and displayed on the display unit.

Example 2

[Claim]

A point-of-sale system, particularly one that can issue a warning message to an operator upon reading that a commodity's consumption period has expired, comprising:

a barcode reading device that reads a barcode attached to a commodity for sale;

a memory device, storing commodity information of the commodity for sale including commodity name, selling price and consumption period corresponding to the bar code;

a display device that displays the commodity name and selling price of the commodities for sale;

a control device which, when selling commodities, accesses the memory device through the barcode designating the commodity and reads out information of the commodity name and the selling price, and causes the display device to display the commodity name and the selling price and perform commodity vending processing simultaneously;

an audio device that produces an alarm sound; and

a timing device that calculates time in real-time;

wherein the control device identifies, according to the barcode read by the barcode reading device, the consumption period of the commodity for sale, and upon comparison with a current time from the timing device, when the current date has exceeded the consumption period, the display device displays a warning message and the audio device emits an alarm sound.

(2) Computer-Readable Medium Claims

The invention of a computer-readable medium is to store computer software or data structures in a computer-readable medium such as a hard disk, a floppy disk, an optical disk, and a USB flash drive. The computer-readable recording medium is incapable of solving problems directly by itself; the essence thereof lies in the information recorded therein and the processing based on the information, rather than the recording

method of the information, the content of the information itself, or the structure of the recording medium itself.

The invention of a computer-readable medium is a recording medium that stores a program or algorithm, which can usually be defined by the steps performed by the program or algorithm. For example:

(i) A computer-readable medium with a program stored therein, which, upon execution of the program by a computer, performs step A, step B, step C....

However, in response to the concepts of modularization, functionalization, and parallel processing of computer software, it can also be defined in the form of modules, functions, data structures, and means, etc. For example:

(ii) A computer-readable medium with a program stored therein, wherein the program comprises module A, module B, module C....

(iii) A computer-readable medium with a program stored therein, which implements an algorithm upon execution of the program by a computer, the algorithm including function A, function B, function C....

(iv) A computer-readable medium with data stored therein, wherein the data includes data structure A, data structure B, data structure C....

(v) A computer-readable medium with a computer program stored therein, which, upon execution of the program, enables a computer to possess means A, means B, means C....

When the technical features in a computer-readable medium claim and a method claim are fully identical and differ only in scope, they may be written in the form of recitation by reference claims.

Example 1

[Claim]

A computer-readable medium storing a data file, comprising:
at least a first digital data region and a second digital data region,
wherein,
the first digital data region includes data representing a visual image from a first location,
the second digital data region includes data representing a visual image from a second location, wherein the second location is different from the first location; and
an index data region includes overlapping data of the visual image of the plurality of digital data regions, so as to generate an index data

of stereoscopic image effect.

Example 2

[Claims]

1. A method for determining and displaying a structure of a compound, comprising the steps of:
 - (a) solving a parameter of the compound's waveform function;
 - (b) determining a structure of the compound according to the parameter; and
 - (c) displaying a three-dimensional structure of the compound determined in step (b).
2. A computer-readable medium storing a program, wherein when a computer loads and executes the program, performs the method as recited in claim 1.

(3) Computer Program (Product) Claims

Due to the prevalence of the Internet, computer software can not only be stored in readable mediums, but also directly transmitted and provided on the Internet. Therefore, computer software related invention may include claims which subject matters are computer programs or computer program products. A computer program (product) is an entity that contains a computer-readable program and is not limited to a particular external form.

When the technical features in a computer program (product) claim and a method claim are fully identical and differ only in scope, they may be written in the form of recitation by reference claims.

Example 1

[Claim]

A computer program product, which executes the following programs when loaded by a computer:

a first program instruction, which causes a microprocessor to read a request for data transmission from an external hardware;

a second program instruction, which causes the microprocessor to respond, acknowledge the request for data transmission from the external hardware, and receive data;

a third program instruction, which causes the microprocessor to notify the external hardware that an authorization process has failed

and data cannot be received; and

a fourth program instruction, which causes the microprocessor to resynchronize with the external hardware from an initial point of the authorization procedure failure, and to respond to the request for data transmission from the external hardware, and to receive the data.

Example 2

[Claims]

1. A method for automatically displaying email text and images, comprising the following steps:

a receiving step, receiving an e-mail from a network;

a storing step, storing the received email in a recording medium;

a determining step, determining whether the received email contains image data;

a display step, which, upon determining an image data is included, automatically displays the text and the image data of the email.

2. A computer program product storing a program for displaying text and image of an e-mail, which, when the computer program is loaded and executed on a computer, performs the method as recited in claim 1.

(4) Data Structure (Product) Claims

Enabling information processing by a computer through data structure is similar to the above-mentioned computer program (product); the data structure or data structure product may also be used as the subject matter of a claim.

Example 1

[Claim]

A data structure product for storing a data source including a plurality of encoded stream data, wherein each of the encoded stream data is encoded according to different resolutions, the data structure product comprising:

a header;

a plurality of encoded stream data fields for identifying each of the encoded stream data; and

at least one packet of each of the encoded stream data;
wherein the header is linked to one of the encoded stream data fields, and each of the encoded stream data fields includes a stream header field, a link to a next encoded stream data field, and the link to a first packet of the encoded stream data,

2.2.2 Recitation Principle of Claims

Claims for inventions related to computer software shall be recited in a clear and concise manner, and must be supported by the description, and the provisions of Section 2.4 of Chapter 1 shall apply.

2.2.3 Scenario of Claim Indefiniteness

The following examples illustrate scenarios in which the claims of computer software related invention are indefinite:

2.2.3.1 Object That Performs the Step Or Function Is Unuclear

Example 1

[Claim]

A method of receiving an order for merchandise, comprising the following steps:

using a computer to receive merchandise orders from a customer;
checking inventory of the merchandise;

when the merchandise is in stock, notifying the customer that the merchandise can be shipped;

when the merchandise is out of stock, notifying the customer that the merchandise cannot be shipped.

[Remark]

The claim does not limit the object that performs each step, and the interpretation may include various possibilities that include manual or computer execution, so the claim is indefinite.

Example 2

[Claim]

A computer program product, which performs the following steps

upon loading the program by a computer:

receiving merchandise orders from customers;

checking inventory of the merchandise;

when the merchandise is in stock, notifying the customer that the merchandise can be shipped;

when the merchandise is out of stock, notifying the customer that the merchandise cannot be shipped.

[Remark]

From the title of the subject matter "computer program product" and "...performs the following steps upon loading the program by a computer..." etc., it can be clearly known that each step is performed by a computer after the program is executed, so the claim is definite.

2.2.3.2 Technical Feature that Defines the Invention is Indefinite

Example 1

[Claim]

A problem-solving computer that uses right-brain inference rules to solve difficult problems.

[Remark]

The relevant technical content of the "Right-Brain Inference Rule" is not defined in the claim, nor is it defined or explained in the description. Even with reference to general knowledge at the time of filing, it is still impossible to understand the technical meaning thereof. The claim is therefore indefinite.

Example 2

[Claim]

A transmission medium that transmits data packets.

[Remark]

Since the transmission medium (such as coaxial cable, telephone line, etc.) itself has the function of transmitting data packets, the technical features described in the request only indicate that the data packets are transmitted on the transmission medium, but do not specify any technical association between the transmission medium and the data packet, resulting in the indefiniteness of the claim.

2.2.3.3 Indefiniteness Due to Indefinite Expression

Example 1

[Claim]

A compiling machine, comprising: a high-speed lexical analysis device; and a syntax analysis device; wherein the two devices are capable of parallel processing.

[Remark]

The description does not define the meaning of "high speed." Even if the general knowledge at the time of filing is considered, the comparison standard or degree of "high speed" is not clear and the scope of the application cannot be ascertained. The claim is therefore indefinite.

Example 2

[Claim]

A computer system, comprising: an input device, and a visually pleasant computer interface display device....

[Remark]

"Visually pleasant" refers to an individual's subjective evaluation on the visual or psychological level, and there is no objective comparison benchmark. The claim recites a term whose relative standard or degree is indefinite, thus rendering the claim indefinite.

2.2.3.4 Indefinite Scope

If the title of a subject matter recites "architecture," "mechanism," "technology," "signal," etc., the scope would be indefinite because it is impossible to determine whether the subject matter of the claim is a product or a method.

Example 1

[Claim]

A series of program signals, which make a computer execute step 1; step 2; and step 3.

[Remark]

The title of the subject matter recites a series of "program signals," and it is impossible to determine whether it is a product

invention or a method invention. The claim is therefore indefinite.

Example 2

[Claim]

An information carrier, when received by a computer, performs step 1; step 2; and step 3.

[Remark]

The title of the subject matter recites "Information Carrier." It is impossible to determine whether it is a product invention or a method invention. The claim is therefore indefinite.

2.2.3.5 Indefinite Means (Steps) Plus Function Expression

The construction of means (steps) plus function expression in the claims should include the structure, material, or action corresponding to the function described in the description and its equivalent scope. If the description does not recite the structure, material, or action corresponding to the function, or the computer software algorithm or hardware component for achieving the function, or the terms recited in the description are too generic, a person ordinarily skilled in the art would not be able to determine the structure, material, action, or the computer software algorithm or hardware component for achieving the function. This often results in the claims being indefinite and lacking support from the description, and the description may also fail to meet the enablement requirements.

When an applicant employs means or steps plus function language in the construction of a claim, the features of the claim shall include the necessary structures, materials or actions, and the equivalence corresponding to achieving the function, but not directly limited to the embodiments recited in the description. The scope of equivalence should be limited to a scope that would not cause doubt to a person ordinarily skilled in the art at the time of filing. For example, the function of a certain technical feature in a claim recites "...means for converting multiple images into a specific digital format," and the structure corresponding to the function in the description is a data extractor or a computer video processor, which is only able to convert analog data into digital format. Assuming that the general knowledge at the time of filing is limited to converting analog data into digital format (e.g., converting video tapes to computer files), and there existed no technology for converting between digital formats (e.g., converting mpeg files to avi

files), then although the present technology of "achieving digital-to-digital conversion by a program" may achieve the recited function, because the description did not recite this technique, when constructing the claims, the scope of the claims should not cover the technique of "achieving digital-to-digital conversion by a program."

2.2.3.6 Lack of Essential Technical Features

Essential technical features refer to the technical features that are indispensable for solving the problem of the claimed invention. If, according to the description and the general knowledge at the time of filing, it is determined that the independent claim does not recite the essential technical features, then the claim is deemed indefinite.

Example 1

[Claim]

A microprocessor scheduling method, comprising the following steps:

transferring data from one queue to another queue within a multi-level queue of memory;

setting a weight value for each queue, wherein the weight value is set according to a CPU usage time for data processing; and

controlling data output by a microprocessor with reference to each weight value, so that a loading of the data output becomes equalized, so as to improve efficiency of data processing.

[Description]

The present invention pertains to a microprocessor scheduling method. The problem to be solved by the invention is to complete all the procedures of the CPU in the shortest amount of time. The means to solve the problem is to set the weight of a queue, where data processing with the least CPU usage time is located, to a higher value.

[Remark]

Referring to the description, the claim does not clearly recite the essential technical features of how to implement the setting of each queue weight value to improve the CPU processing efficiency. Therefore, the claim is indefinite.

Example 2

[Claim]

A microprocessor scheduling method, comprising the following steps:

transferring data from one queue to another queue within a multi-level queue of memory;

setting a weight value for each queue, wherein the weight value is set according to a CPU usage time used for data processing, the less CPU usage time, the higher the weight value is for the queue it is in; and

controlling data output by a microprocessor with reference to each weight value, so that a loading of the data output becomes equalized, so as to improve efficiency of data processing.

[Description]

(Same as example 1)

[Remark]

The setting of the queue weight value has been recited in the claim: "the less CPU usage time for a data processing, the higher the weight value is for the queue it is in." Referring to the description, the claim has stated the essential technical features that solve the problem, and thus the claim is definite.

2.2.4 Supported by the Description

In the field of computer software technology, the claimed invention is often defined by function. The construction therefor should thus include all the implementations that can achieve the function (with the exception of means/steps plus function language). A claim that recites a generalization of the embodiments of the description in terms of a functional definition, should be supported by the embodiments disclosed in the description. During examination, the content disclosed in the description shall be the basis, with reference to general knowledge at the time of filing, so as to determine whether the content disclosed in the description can be extended to cover the full scope of the claims.

If the function defined in the claim can be implemented in a specific way as described in the description, but a person ordinarily skilled in the art cannot understand that the function can be realized in other alternative ways not mentioned in the description, or there is sufficient reason to suspect the feasibility of the implementation of the function through the specific method

recited in the description, the claim with a functional definition should be deemed lacking support from the description.

When the scope of a claim with a functional definition is too generic to be supported by the description, it usually means that a person ordinarily skilled in the art, based on the content of the description, may only implement a partial scope of the claim rather than the full scope thereof. When an examiner issues the reason for rejection of a claim based on the lack of support of the description (not in compliance with Paragraph 2, Article 26 of the Patent Act), the examiner may also issue a notice that the description fails to meet the enablement requirements (not in compliance with Paragraph 1, Article 26 of the Patent Act).

Example 1

[Claim]

An audio-visual playback device for soothing emotions, comprising: a control module for playing audio and video signals that lowers the frequency of the user's breathing and heart rate.

[Remark]

The Description only recites the audio-visual signals of a jellyfish swimming scene with the sound of ocean waves at a specific frequency (slow beat), and provides experimental data proving that the audio-visual data may, after being received by a user for a period of time, soothe the physiological and mental condition thereof, thereby lowering the breathing frequency and heart rate of the user. Based on the description and the general knowledge at the time of filing, a person ordinarily skilled in the art would not be able to understand how the aforementioned functions (lowering a user's breathing and heart beat frequency) can be accomplished by using other audio and video signals not mentioned in the description. The claim therefore lacks support from the description.

If the applicant narrowly amends the claim to recite the particular implementation disclosed by the description, or if the applicant has provided specific reasons explaining how the content disclosed in the description can be reasonably predicted or extended to the scope of the claim using routine experiments or analytical methods, the claim may be deemed supported by the description.

Example 2

[Claim]

A body weight estimation device, comprising:

a machine learning module, trained using facial shape features and body-height and weight values as training data, wherein after completion of training, the machine learning module outputs an estimated bodyweight value based on facial shape features and body-height values;

a receiving module, which receives the facial image and body-height value of a test subject;

a feature quantity extraction module, which analyzes the facial image and obtains feature quantity of facial shape; and

a processing module, which inputs the body-height value received, by the receiving module and the feature quantity of facial shape obtained by the feature quantity extraction module, into the machine learning module, and outputs the estimated bodyweight value obtained from the machine learning module.

[Remark]

The description describes that there is a statistically significant correlation between the cosine of the angle between the cheek and the jaw and BMI (weight/height squared). Therefore, the machine learning model is used to analyze the angle of the cheek and the jaw, so as to estimate the subject's weight value. However, the term "features of facial shape" recited in the claim covers other arbitrary features on a human face, yet the description does not explain how other facial features are related to BMI, and it is difficult to infer the correlation between the body-weight value and the other facial features even with reference to general knowledge at the time of filing. A person ordinarily skilled in the art would thus be unable to extend the scope of the claim, from the particular facial shape feature quantity disclosed by the description, to the arbitrary feature quantity of a human facial shape as recited by the claim. The claim is therefore unsupported by the description.

If the applicant narrows down the claim term "feature quantity of facial shape" to "an angle of cheek and jaw" by correction, the claim would be supported by the description.

Example 3

[Claim]

A residential temperature automatic control system, comprising:
a storage unit for storing historical weather information and residential temperature control information;
a learning model generator, the learning model generator generating a machine learning model, and the machine learning model being trained by using information stored in the storage unit as training data;
a receiving unit, for receiving current weather information from a server of the Meteorological Bureau; and
an output unit that outputs a residential automatic temperature control message according to a result predicted by the machine learning model from the current weather information.

[Remark]

The description only describes one specific implementation of training and prediction of the machine learning model based on the outdoor temperature as weather information. However, with reference to the general knowledge at the time of filing, a person ordinarily skilled in the art may understand that the outdoor humidity, wind speed, and cloudiness, etc., may also be used as weather information related to temperature control. Therefore the claim is still supported by the description.

2.3 Notes for Examination

- (1) The title of the subject matter of a claim uses terms other than "computer program (product)," e.g., program module, function library, support vector machine, (artificial) neural network, (artificial) neural network model, etc., and if with reference to the contents recited in the description and drawings and the general knowledge at the time of filing, it can be clearly understood that the invention described in the claim is essentially a "computer program (product)," then the claim is not indefinite. There is no need to demand the applicant to correct the subject matter's title to "computer program (product)," or to append terms such as "device" and "system" to the original subject matter's title.
- (2) For the technical features in the claim that are only defined by functionality, for the sake of examination efficiency, the examiner may first interpret it as including any device or step that can achieve or realize

the recited function, so as to conduct a prior art search and make a comparison. The applicant may then provide evidence to explain the substantial difference between the technical features recited in the claim and the prior art, or other specific reasons, e.g., that it should be interpreted as a means (steps) plus function expression and be constructed to read on the structures, materials, or actions corresponding to the function recited in the description and their equivalence.

3. Definition of Invention

Invention means the creation of technical ideas, utilizing the laws of nature. And the same applies to computer software related inventions, and the provisions of Chapter 2, Section 1 shall apply.

Patent Act §21

3.1 Principle of Determination

Whether or not a computer software related invention meets the definition of invention is determined based on the claimed invention, i.e., the invention recited in each of the claims as a whole, as the subject of determination, on a claim by claim basis.

3.2 Steps of Determination

The examiner shall first determine the scope of the claimed invention. When interpreting the claims, the examiner may refer to the description and drawings, but shall not import limitations not recited in the content of the claims from the description and drawings. Proceed in accordance with the following steps (1) and (2) (the overall judgment process is shown in the figure below) to judge whether the computer software related invention meets the definition of invention:

(1) Determine whether the Scenario evidently meets or fails to meet the definition of invention

With regard to the scenarios that clearly meet the definition of an invention, they refer to computer software related inventions that are directed

to, e.g.:

(i) those concretely perform control of an apparatus, apparatuses or process with respect to the control; or

(ii) those concretely perform information processing based on the technical properties of an object.

For details, please refer to Section 3.3.1 of this chapter.

With regard to the scenarios that evidently fail to meet the definition of an invention, they refer to computer software related inventions that are directed to, e.g.:

(i) those that do not utilize the laws of nature; or

(ii) those that do not involve technical ideas.

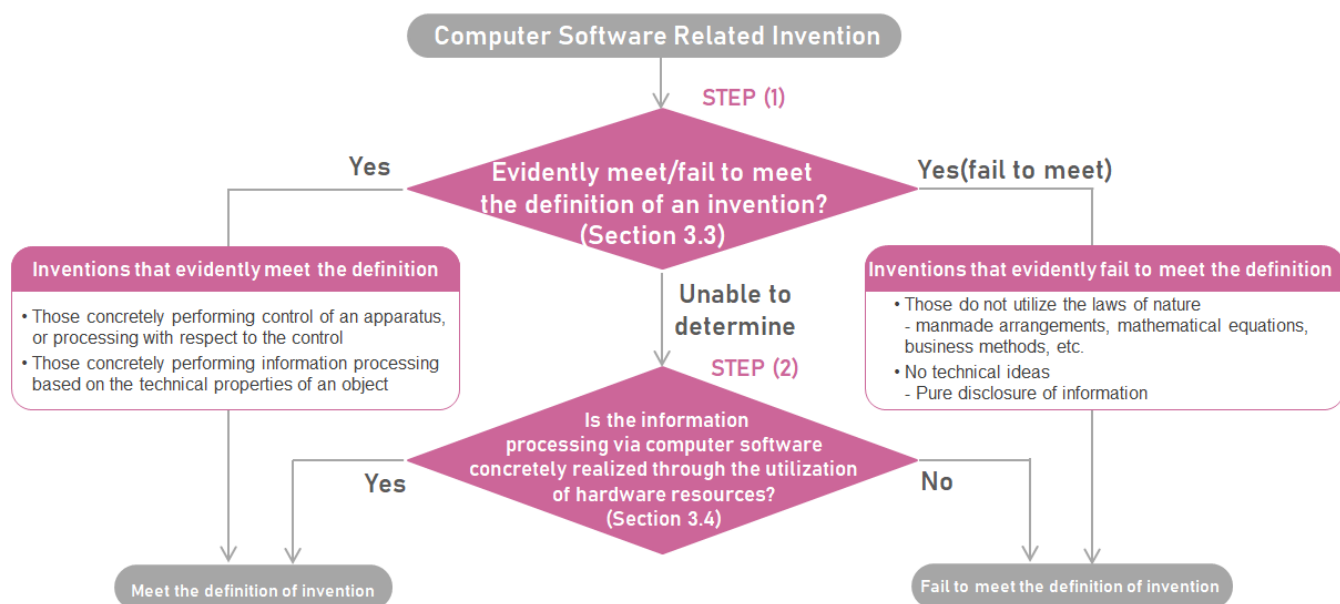
For details, please refer to Section 3.3.2 of this chapter.

(2) Determine "Is the information processing via computer software concretely realized through the utilization of hardware resources?"

For those that cannot be determined or classified as evidently meeting the definition of invention as set forth in step (1), the determination process shall proceed to determining is "the information processing via computer software concretely realized through the utilization of hardware resources" requirement is met for a computer software in a computer software related invention. If the above requirement is met, it means that the computer software is directed to a creation of technical idea utilizing the laws of nature, and therefore meets the definition of invention.

The so-called "the information processing via computer software is concretely realized through the utilization of hardware resources" refers to a specific information processing device or method, constructed in accordance with the purpose of information processing through the cooperative operation between a computer software and hardware resources. The details thereof may be found in the content of Section 3.4 of this chapter.

Furthermore, when a computer software meets the aforementioned requirements, the information processing device that cooperates with the computer software, the information processing method thereof, or the computer-readable recording medium carrying the computer software, etc., all meet the definition of invention.



3.3 Scenarios that Evidently Meet or Fail to Meet the Definition of Invention

3.3.1 Scenarios that Evidently Meet the Definition of Invention

A Computer software related invention directed to, e.g., "those concretely perform control of an apparatus, or processing with respect to the control" as discussed in the following Section 3.3.1.1, or "those concretely perform information processing based on the technical properties of an object" as discussed in the following section 3.3.1.2, shall be considered as a creation of technical idea utilizing the laws of nature, and therefore meets the definition of invention.

Furthermore, if a method invention already belongs to the creation of technical idea utilizing the laws of nature and meets the definition of invention, then the invention thereof as a whole, e.g., the computer program that causes a computer to execute the method, or the computer or system that executes the method, would likewise belong to the creation of technical idea utilizing the laws of nature, and would meet the definition of invention.

3.3.1.1 Those Concretely Perform Control of an Apparatus, or Process with respect to the Control

Apparatuses refer to devices composed of various parts that can be operated and controlled, such as electric cookers, washing apparatuses, engines, hard disk drives, etc. Those concretely perform control of an apparatus or process with respect to the control can usually be one of the following situations:

- (1) Those that control the aforementioned apparatuses based on the structure, component, composition, effect, function, property, characteristic or action of the subject apparatuses to be controlled, or of those associated with the subject apparatuses to be controlled;
- (2) Those that, in accordance with the employment purpose of apparatuses, perform control of the aforementioned apparatuses in order to implement the operations thereof;
- (3) Those that perform integrated controls for a system that includes a plurality of associated apparatuses.

Example 1 (complies with point (1) above)

[Claim]

A web server, comprising;
a receiving device for receiving, from a plurality of user terminals, user calendar information stored in the user terminal;
a processing device for estimating, based on the user calendar information, a time when a user arrives home;
a setting device, based on the estimated time when the user arrives home, for setting a point of time at which cooking can be completed before the time when the user arrives home; and
a starter device that instructs an electric cooker to start cooking in accordance with the point of time.

[Remark]

The invention set forth in the claim performs control based on the function of the controlled apparatus (electric cooker) (to complete cooking at a predetermined time), and thus it belongs to those that concretely perform control of apparatuses or process with respect to the control, thereby meeting the definition of invention.

Example 2 (complies with point (2) above)

[Claim]

A power control system for selling power generated by a power generating device to a commercial power system, purchasing system power from the commercial power system and transmitting power to a battery and a piece of electrical equipment, storing power generated by the power generating device to the battery, and discharging power from the battery to the electrical equipment, the power control system comprising:

a server that includes a power value calculation module, which calculates power value of each time slot according to an estimated power consumption value of the electrical equipment and an estimated power generation volume of the power generation device, when a stored capacity of the battery is sufficient to bear a loading of the estimated power consumption value, the power value is calculated by a sum of a power generating volume of saleable power of the power generating device times a unit electricity selling price, and a system power volume that does not need to be purchased times a unit electricity buying price; and

a power control device connected to the server through a network and including a power control portion which, when the power value calculated by the power value calculation module is higher than a predetermined value of a time slot, performs power selling, power storing, and power discharging, but limits power purchasing.

[Remark]

The invention described in the claim is based on the purpose of use of equipment (e.g., power generation device and battery), in order to concretely implement its operation (in the time slot of high power value, selling the power generated by the power generation device to a commercial power system, storing the power generated by the power generating device in a battery, and discharging the stored power of the battery to the electrical equipment, but limiting power purchasing of system power from the commercial power system to the battery and the electrical equipment) for control, and thus belongs to those concretely perform control of apparatuses or process with respect to the control, and meets the definition of invention.

Example 3 (complies with point (3) above)

[Claim]

A cargo distribution method, for use in a cargo distribution system, the cargo distribution system including a logistics vehicle and a drone, the logistics vehicle having a cargo distribution device for automatically loading cargo onto the drone, the logistics vehicle being provided with space for drone takeoff and landing, and the cargo distribution device and the drone being capable of communicating with a management server; the cargo distribution method executes the following steps at least once according to the instructions of the management server:

(a) loading cargo, by the cargo distribution device, onto the drone located in the space;

(b) unloading the cargo, by a flight of the drone, to a cargo distribution location;

(c) flying the drone back to the logistics vehicle and landing in the space.

[Remark]

The invention recited in the claim is based on the instructions of the management server, using the associated operations of the cargo delivery device and the drones, to realize the delivery of cargo, which belongs to the performance of integrated controls of a system (cargo distribution system) that includes a plurality of associated apparatuses (cargo distribution device and drones). It therefore belongs to those that perform integrated controls for a system that includes a plurality of associated apparatuses, and thus meets the definition of invention.

3.3.1.2 Those Concretely Perform Information Processing Based on the Technical Properties of an Object

Technical properties refer to physical properties, chemical properties, biological properties, electrical properties and other properties of objects, such as engine speed, rolling temperature, relationship between gene sequence and trait expression, and the physical or chemical bonding relationship between elements. Those concretely perform information processing based on the technical properties of an object, may usually belong to one of the following situations:

(1) Those that, for information such as numerical values or images that show technical properties of an object, perform calculation or

processing based on the technical property, so as to obtain information such as numerical values and images;

(2) Those that perform information processing using the technical correlation between the state of an object and its corresponding phenomenon.

Example 1 (complies with (1) above)

[Claim]

A method of analyzing an electrocardiogram signal, comprising the following steps:

converting a cardiac activity signal into a QRS complex with digital values in the time domain;

passing the QRS complex through a high-pass filter in reverse timing;

obtaining an output value after passing through the high-pass filter; and

comparing the output value with a predetermined high frequency value.

[Remark]

The invention recited in the claim seeks to perform computation or processing (conversion of QRS complexes, passing QRS complexes through a high-pass filter, etc.) on information that shows technical properties of an object (electrophysiological activity of the heart), so as to obtain the informations of numerical value, thus meets the definition of invention.

Example 2 (complies with (2) above)

[Claim]

A computer program product for preventing occurrence of secondary car accidents, which, upon being loaded into a computer, causes execution of the following steps:

according to vehicle acceleration and speed data transmitting from a terminal of a vehicle, determining an occurrence of collision and stoppage of the vehicle;

analyzing whether the speeds of other nearby vehicles around the vehicle are reduced to determine whether the vehicle is involved in a car accident; and

transmitting the information about the car accident to other vehicles in a

vicinity of the vehicle.

[Remark]

The invention recited in the claim utilizes the technical correlations (the correlation between the speed and acceleration of a vehicle, the speeds of nearby vehicles, and the phenomenon of occurrence of a car accident) for information processing, which belongs to those concretely performing information processing based on the technical properties such as physical properties of an object and thus meets the definition of invention.

3.3.2 Scenarios that Evidently Fail to Meet the Definition of Invention

A computer software related invention, if belongs to those that do not utilize laws of nature or applies non-technical concepts, i.e., creations not of technical concepts that utilize the laws of nature, does not meet the definition of invention.

3.3.2.1 Those that do not Utilize The Laws of Nature

The invention recited in a claim, if happens to be one of the following, belongs to those that do not utilize the laws of nature:

- (1) Artificial arrangements, such as programming languages.
- (2) Laws other than natural laws or man-made rules, such as rules or methods of games or sports, economic laws, etc.
- (3) Mathematical formulas or mathematical methods, such as the method of Fast Fourier Transform.
- (4) Human mental or intellectual activities, such as the drafting of legal documents.
- (5) Implementation using only the aforementioned (1) to (4), such as the implementation of business methods.

The invention recited in a claim, even if having a portion that utilizes the laws of nature (e.g., the use of a computer), if the claim when considered as a whole, still belongs to those that do not utilize the laws of nature, shall

be deemed as not utilizing the laws of nature. On the contrary, even if having a portion that does not utilize the laws of nature (e.g., mathematical formula), if a claim when considered as a whole still belongs to the utilization of the laws of nature, then the invention shall still be deemed as those that utilize the laws of nature.

When the claimed invention is a method invention, special attention should be paid to whether the invention as a whole belongs to one of the aforementioned (1) to (5) that does not utilize the laws of nature.

Example 1

[Claim]

A method of enabling remote chess playing between players, comprising iteration of following steps:

upon a turn of a first player, transmitting a chess move of the first player to a second player using a chatting system; and

upon a turn of the second player, receiving by the chatting system a chess move of the second player.

[Remark]

Although the invention recited in the claim involves a chatting system as a technical means, the claim as a whole is merely a method of artificial arrangement for players who are separated from each other to play chess interactively, and thus does not meet the definition of invention.

Example 2

[Claim]

An online lottery method, comprising following steps:

distributing a plurality of lottery tickets to a plurality of participants, wherein each one of the lottery tickets includes a barcode, wherein the barcode corresponds to a URL of a lottery web page;

logging in, by the participants, to the lottery web page; and

randomly selecting, by a server, a particular amount of winners from the participants who logged in.

[Remark]

Although the invention recited in the claim involves using web pages and servers as technical means, the claim as a whole belongs to an artificial arrangement of the lottery process. The aforementioned

technical means is used merely as a tool for artificial arrangement, and thus does not meet the definition of invention.

3.3.2.2 Those of non-technical concept

When a claimed invention for is merely a display of information, which is not a creation of technical conception per se, it does not meet the definition of invention. A simple display of information refers to those that are merely characterized by the content of the information disclosed, with information display as its main purpose. The provisions of Section 1.3.5.2 of Chapter II shall apply.

For example, the graphic design configuration of a user interface, which is designed for attracting users or facilitating user operation, is merely a simple display of information. In addition, the information content of a message displayed on a device, a user manual or specification that recites method of operation for a chip, an optical disc that stores music files, image data obtained by a digital camera, all belong to a simple display of information.

The data format per se is only a static memory configuration. For a data format, if only a content information or format is disclosed, but how it is used or executed by a computer or program is not clearly explained, the data format still belongs to the simple display of information. If the cooperative operation of a computer or program and the data format is only related to steps associated with data collection and input, then even if the data may contain a special format, it is still a simple display of information.

3.4 Information Processing via Computer Software is Concretely Realized through the Utilization of Hardware Resources

For computer software related inventions that cannot be determined as being clearly meeting or not meeting the definition of invention according to Section 3.3 above, the evaluation shall continue to determine whether it conforms to the requirement of “information processing via computer software is concretely realized through the utilization of hardware resource.” Among them, hardware resources refer to physical apparatus or components

used for implementing information processing, operations or functions, such as computers, or components such as central processing units (CPUs) and memory, or keyboards, screens, etc., that are connected to the computer.

The requirement of "information processing via computer software is concretely realized through the utilization of hardware resources" refers to the construction of a specific information processing apparatus or method according to the purpose of information processing through the cooperative operation of computer software and hardware resources. For the concrete technical means or steps of the cooperative operation of the computer software and hardware resources recited in a claim, during determination, an examiner should refer to the general knowledge at the time of filing, and determine whether the specific information processing or calculation is implemented according to the purpose of information processing, so as to determine whether the computer software related invention meets the requirement mentioned above, and thus belongs to "the creation of technical ideas, utilizing the laws of nature" and meets the definition of an invention.

The concrete technical means or concrete steps for the cooperative operation of computer software and hardware resources does not mean that it is necessary to recite specific hardware resources in the claim. If the technical means of specific information processing has been recited in a claim, then even if the claim only recites that the computer is a hardware resource or does not recite any hardware resource at all, with the reference of general knowledge at the time of filing, if the technical means for specific information processing is known to be implementable through the cooperative operation of ordinary computer hardware and software components such as central processing units or memories, such claim shall be deemed to meet the "information processing via computer software is concretely realized through the utilization of hardware resources" requirement. On the contrary, if a claim recites hardware resources, but does not recite the concrete technical means or steps for the cooperative operation of the computer software and the hardware resources to implement the specific information processing or computation according to the purpose of information processing, it still does not meet the requirement of "information processing via computer software is concretely realized through the utilization of hardware resources."

The "information processing via computer software is concretely realized through the utilization of hardware resources" requirement is to determine the invention as a whole in the claim, rather than just to scrutinize a portion of the technical features in the claim. In particular, when the concrete technical means or steps for the cooperative operation of computer software and hardware resources are implemented by the claim as a whole, one should avoid examining only the individual technical means or steps recited in the claim.

Furthermore, if a claim describes the technical means for data input (or collection), or the technical means for data output (or display), but does not concretely describe the specific information processing means or steps after data input and before output, or only recites the purpose or result of information processing, such claim does not meet the requirement of "information processing via computer software is concretely realized through the utilization of hardware resources."

Example 1

[Claim]

A computer system for word processing, comprising:
an input unit for inputting text data;
a processing unit for processing the text data to generate a summary;
a display unit for displaying the summary.

[Remark]

Although the invention described in the claim recites hardware resources such as an input unit, a processing unit, and a display unit, and uses the information processing of computer software to realize the function of generating a summary, the claim does not recite the concrete technical means or steps of the cooperative operation of computer software and hardware resources, and cannot implement the specific information processing or computation according to the purpose of information processing (generating a summary). The claim thus does not construct a specific information processing device or method, and does not meet the definition of an invention.

Example 2

[Claim]

A computer program product for word processing, which, upon being loaded by a computer, generates summary for a specific document from a plurality of documents by performing the following steps:

analyzing and extracting one or more sentences from the specific document, and one or more words contained in the sentences;

for each extracted word, based on the term frequency (TF) of the word in each sentence and the inverse document frequency (IDF) of the word in all of the documents, computing an importance of each of the sentences from a TF-IDF value of each of the words contained in each of the sentences; and

according to an order of importance of each sentence in the specific document, selecting and arranging from the specific document a predetermined number of sentences to generate summary.

[Remark]

The invention described in the claim only contains "computer" in the preamble and recites no other hardware resources. But from the content of the subject title such as "computer program product" and "loaded by a computer...", and according to general knowledge at the time of filing, it can be known that the specific information processing or computing technical means used to generate a summary as recited in the claim can be implemented through the cooperative operation between hardware resources, such as the processor and memory ordinarily possessed by a computer and a computer software. In addition, the claim recites the concrete information processing or calculation steps according to the purpose of information processing (generating a summary), and is capable of constructing a specific information processing method, thus meeting the definition of an invention.

3.5 Notes for Examination

- (1) If a computer software related invention uses computer programs, (artificial) neural networks or artificial intelligence to process medical-related information, it is necessary to pay attention to whether the method claimed invention belongs to diagnosis and treatment methods for humans or animals, which belongs to the statutory non-patentable subject matter. For the determination on the diagnosis and treatment of humans or

animals, see Sections 2.2.1 and 2.2.2 of Chapter 13.

- (2) If an invention recited in a claim does not meet the definition of invention, but may be amendable to meet the definition of an invention, the examiner may, according to the circumstances, put forward a suggestion for amendment when stating the reason why the claim does not meet the definition of an invention in the Office Action.
- (3) In addition, for examination efficiency, the examiner may reasonably predict the possible amendments an applicant may submit for overcoming a rejection for failure to meet the definition of an invention, and include it in the scope of prior art search. In addition, while all the reasons of refusal for patent should be, in principle, stated in an Office Action, if there is a high likelihood that the applicant's amendments may overcome the other rejections altogether through only partial notification of refusal for patent, there would be no need to notify all the grounds of refusal for patent. For example, if an Office Action only notifies the lack of novelty or inventive step in a claim, but there is a high likelihood that the claim, upon amendment, would simultaneously overcome the failure to meet the definition of an invention, then there is no need for notifying the claim's failure to meet the definition of invention.

4. Patentability Requirements

4.1 Industrial Applicability

Since the technical fields of computer software applications are quite extensive, many industries may use computer software related technologies to solve a certain issue. Therefore, when examining whether such patent applications meet the industrial applicability requirement, the recited technical field to which the invention belongs in the description should be considered for the determination. If a claimed invention can be manufactured or used in an industry, the invention is deemed to be useful for industrial utilization, and thus possesses industrial applicability.

4.2 Inventive Step

The examination of inventive step for computer software related

inventions shall be subject to the general provisions of "Inventiveness" set forth in Section 3, Chapter 3. The following provides an explanation of additional points to be noted.

4.2.1 Person Ordinarily Skilled in the Art

A person ordinarily skilled in the art is a fictitious person; please refer to Section 3.2.1 of Chapter 3: "person ordinarily skilled in the art."

For computer software related inventions that use computer software related technologies to solve problems in the applied technical field, a person ordinarily skilled in the art should possess general knowledge and ordinary skills in both the technical field in which the invention is applied and the field of computer software technology at the time of filing, and be capable of understanding and utilizing the prior arts at the time of filing.

In addition, considering the concrete facts of the technical field to which the invention pertains, including the technical field of computer software, the person ordinarily skilled in the art may include a group of people when appropriate.

4.2.2 Determination Procedure for Inventive Step

The prior art for the examination of inventive step shall be relevant prior art. Since computer software related technologies can be widely used in various technical fields, for computer software related inventions that apply computer software related technologies to another technical field, when searching for related prior arts, the search may be extended to other technical fields besides the computer software technical field and the technical field to which it is applied.

When selecting a citation from the relevant prior art as the basis for determining inventiveness, and designating a primary citation for comparing against the technical content of an invention for which patent is applied, a proper primary citation may often be chosen from those that belong to the same or similar technical field, having the same or similar problem to be solved, or adopting the same or similar technical means. For example, for an

invention of a business method using computer software related technology, suitable main citations may be selected from those with the same computer software related technology but applied to different business methods.

4.2.2.1 Factors that Deny Existence of Inventive Step

4.2.2.1.1 Motivation to Combine Multiple Citations

When determining whether a person ordinarily skilled in the art has the motivation to combine the technical contents of multiple citations, one shall, in principle, consider factors such as "the relevance of the technical fields", "the similarity in the problem to be solved", the "similarity in the functions or effects" and "teaching or suggestion." Since computer software technology can generally be applied to various technical fields, it should not be directly assumed that there is no motivation to combine such citations simply because the technical fields of the multiple citations are irrelevant.

4.2.2.1.1.1 Similarity in the Problems to be Solved

The similarity in the problem to be solved is determined by whether the technical contents of multiple citations include substantially identical problems to be solved. The problem to be solved includes the problem as stated in the citation, or problems that may be easily thought of by a person ordinarily skilled in the art. In the field of computer software related technologies, for example, replacing manual operation with computers, or software and systematization of manual processes, or improving the accuracy of analysis and prediction using artificial intelligence (AI) and fuzzy logic, or using graphical user interface (GUI) to enable easy operation for a user, etc., all belong to problems that can be easily thought of by a person ordinarily skilled in the art. Since computer software related technologies are commonly applied in various technical fields, the above-mentioned problems may also be easily thought of by a person ordinarily skilled in other technical fields.

Example 1

[Claim]

A method for conducting market research and analysis using a computer, including a market survey questionnaire designing step, and

a step of processing the questionnaire by a computer system, wherein the computer system sends out the questionnaire through a network and collects the questionnaire, and subsequently excludes the questionnaires that possess similar return time and having all identical answers, and then for remaining questionnaires, cross reference an answer of each of the questions with a basic information of each respondent.

[Primary Citation]

A method of using a computer to process a questionnaire. The computer system sends questionnaire through a network and then collects the questionnaire, and subsequently excludes the questionnaires with similar return time and with all identical answers. Then, for the remaining questionnaires, the answers to each question in the questionnaire were cross-referenced with the basic information of the respondents.

[Other citations]

A market survey questionnaire design method.

[Remark]

Replacing manual labor with computers to conduct market research and analysis is a problem easily thought of by a person ordinarily skilled in the art of computer software related technology. Therefore, there is similarity between the problems to be solved in the technical content of the two citations.

4.2.2.1.1.2 Similarity in Functions or Effects

The technical means in the field of computer software technology are generally not limited by the field of application, and have substantially the same function or effect. If the technical contents of multiple citations achieve substantially the same function or effect through different technical means in the field of computer software technology, then even if they are applied to different technical fields, they still possess similarity in functions or effects.

Example 1

[Claim]

A method for predicting weldability of a steel plate using a neural network model, the steel plate being made from steel billet casting by heating, rolling and cooling, comprising: training a convolutional

neural network (CNN) model using a dataset of steel plate composition and manufacturing parameters corresponding to a weldability of steel plate, so as to enable the convolutional neural network model to predict the weldability of the steel plate after receiving input values of the steel plate composition and manufacturing parameters.

[Primary Citation]

A method for predicting the weldability of a steel plate by using a computer, the steel plate being made from a cast billet by heating, rolling and cooling. The method comprises collecting data of the steel plate composition and manufacturing parameters corresponding to the weldability of the steel plate, and computing the data to obtain a mathematical model, so that the mathematical model can predict weldability of the steel plate after receiving the input values of the steel plate composition and manufacturing parameters.

[Other Citations]

A method for predicting the quality of a glass using a neural network model, training a convolutional neural network model using a dataset, so as to enable the convolutional neural network model to predict the quality of a glass after receiving input values.

[Remark]

The technical content of the primary citation pertains to the use of mathematical models to predict the weldability of steel plates, and the technical content of other citations pertains to the use of convolutional neural network models to predict glass quality. The technical contents of the two citations share similarities in the functions or effects of using models to predict material properties.

In addition, the technical contents of the two citations also have similarities in solving the problem of predicting material properties.

Example 2

[Claim]

A system for identifying necrotic myocardial tissue, comprising:
(a) a magnetic resonance imaging device for acquiring a myocardial image; (b) a processor for processing the myocardial image and identifying the necrotic myocardial tissue, wherein the processor first divides the myocardial image into a plurality of partitions, then uses artificial intelligence to determine whether there is necrotic myocardial tissue in each of the image partitions, and if so, marks the necrotic

myocardial tissue; and (c) a display for displaying the marked myocardial image.

[Primary Citation]

A system for identifying necrotic myocardial tissue, comprising:
(a) a magnetic resonance imaging device for acquiring a myocardial image; (b) a processor for processing myocardial image and identifying necrotic myocardial tissue, wherein the processor first divides the myocardial image into a plurality of partitions, then identifies whether there is necrotic myocardial tissue in each of the image partitions according to the average color depth of the image partitions; and (c) a display for displaying the identified myocardial images.

[Other Citations]

An image feature analyzing system that uses artificial intelligence to analyze and identify features in each region of an image that is divided into multiple regions.

[Remark]

The technical content of the primary citation is to identify necrotic myocardial tissue in the image partitions by the average color depth of the image partitions. The technical content of the other citations relates to identifying the characteristics of the image partitions by artificial intelligence. Therefore, the technical contents of the two citations share similarities in the functions or effects of identifying image features in image partitions.

In addition, using artificial intelligence to improve the accuracy of computer analysis and prediction is a problem that is easily conceived of by a person ordinarily skilled in the art of computer software, and hence the problems to be solved for the two citations also have similarities.

Example 3

[Claim]

An online trading system, comprising:
a web server that displays a variety of products on a web page for customer online purchases;
a transaction server, which accepts a customer's online purchase request, notifies a logistics server to schedule a shipment process upon

receipt of an online payment, and displays a shipment number;

wherein the transaction server starts a timer after shipment, and within a predetermined time, accepts a customer's online return and exchange request through a return and exchange interface, wherein the return and exchange interface receives the shipment number input by a customer, and obtains transaction details from the transaction server through the shipment number, and provides an input field for customer to fill in return and exchange related information;

when the timer exceeds the predetermined time, and upon customer input of the shipment number in the return and exchange interface, the return and exchange interface displays "unable to process."

[Primary Citation]

An online trading system, comprising:

a web server that displays a plurality of products on a web page for customer online purchases;

a transaction server that accepts a customer's online purchase request, and upon receipt of online payment, notifies a logistics server to schedule a shipment process, and displays a shipment number; wherein a customer is given an cooling-off period; that is, the customer may return or exchange if unsatisfied with a product within the cooling-off period.

[Other Citations]

An inventory management system, comprising:

a database for storing purchase order data and shipping order data;

a query unit, for receiving a query of order number input by a user, retrieving and outputting corresponding order data in the database;

an acceptance management unit that includes a timer, and an acceptance result information input interface, which only accepts acceptance result information input from a request unit within 3 days of delivery of a product; the acceptance result information includes acceptance and rejection; when an acceptance result message is a rejection, the request unit is required to further input return and exchange related information.

[Remark]

The technical content of the primary citation is that the transaction server handles customer returns and exchanges, and the technical content of the other citations relates to an acceptance management unit that handles returns and exchanges of the request unit. Therefore, the functions or effects of the technical contents of the two citations share similarity.

In addition, the technical contents of the two citations also share similarity in solving the problem of product return and exchange.

4.2.2.1.2 Simple Variation

With regard to the distinguishing technical feature between an claimed invention and the technical content of a citation, if a person ordinarily skilled in the art could, when solving a particular problem, use general knowledge at the time of filing to negate the distinguishing technical features through the exemplary scenarios of the following subsections, thereby achieving the claimed invention In such case, the invention is a "simple modification" of the technical content of the citation.

4.2.2.1.2.1 Conversion between Technical Fields

The technical means in the technical field of computer software are generally not limited to the field of application, and therefore have substantially the same functions and effects. For an invention that applies technical means in the technical field of computer software to other technical fields, or that adapts a computer software technical means employed in one technical field to another technical field, with the only difference residing in the data content of information processing (while maybe still achieving substantially the same function and effect), such invention belongs to those that can be simply modified by a person ordinarily skilled in the art, using general knowledge at the time of filing.

Example 1

[Claim]

A medical information retrieval system, including a retrieval device that retrieves information fields of medical information.

[Citation]

A file retrieval system, including a retrieval device for retrieving

information fields of documents.

[Remark]

The difference between the technical content of the citation and the claimed invention lies in the difference in content data retrieved by the retrieval device.

For different retrieval scenarios, the claimed invention is one that can be simply modified by a person ordinarily skilled in the art, using general knowledge at the time of filing, through converting the retrieval device of the citation to medical information content.

Example 2

[Claim]

A commodity information retrieval system, whose retrieval device performs retrieval based on an established specific index table.

[Citation]

A medical information retrieval system, whose retrieval device performs retrieval based on an established specific index table.

[Remark]

The difference between the technical content of the citation and the claimed invention lies in the difference in content data retrieved by the retrieval device.

For different retrieval scenarios, the claimed invention is one that can be simply modified by a person ordinarily skilled in the art, using general knowledge at the time of filing, through converting the retrieval device of the citation to product information content.

Example 3

[Claim]

A computer-readable medium for storing patient medical record management data, which stores a file with a three-column data structure of patient medical record numbers, names, and ID numbers,

[Citation]

A computer-readable medium for storing student grade management data, which stores a file with a three-column data structure of student numbers, names, and ID numbers,....

[Remark]

The difference between the technical content of the citation and

the claimed invention lies in the difference in content data retrieved by the retrieval device.

For different retrieval scenarios, the claimed invention is one that can be simply modified by a person ordinarily skilled in the art, using general knowledge at the time of filing, through converting the retrieval device of the citation to the storage of patient medical records.

4.2.2.1.2.2 Systematize the methods of operation performed by humans

The development of a system often requires the procedures of design planning, system analysis, and system design. An invention that systemizes the transactions or business methods of human performance in the prior art, using common system analysis and system design methods, is one that can be simply modified by a person ordinarily skilled in the art, using general knowledge at the time of filing.

Example 1

[Claim]

An online transaction method, comprising steps as follows: placing an order, by a user, for a product for sale on a sales web page through a network; after receiving customer's order data by a server, generating a shipping note and a shipment serial number according to the customer's order data.

[Citation]

A transaction method, including the following steps: placing an order, by a user, for a product for sale through fax or telephone; after receiving customer's order data by a store, generating a shipping note and a shipment serial number according to the customer's order data.

[Remark]

The difference between the technical content of the citation and the claimed invention lies in that the receipt of orders is performed through a web page over the Internet instead of by fax or telephone.

For increasing user convenience, the claimed invention is one that can be simply modified by a person ordinarily skilled in the art, using ordinary methods of system analysis and system design, from systematizing and digitizing of the transaction method in the citation

(using server and web page in place of fax and telephone).

Example 2

[Claim]

An electric cooker system, comprising an electric cooker and a server, wherein the server obtains a scheduled return time of each family member through a network; the server calculates a cooking start time of the electric cooker according to the scheduled return time and sets a timer; the cooking start time is the scheduled return time of an earliest returning family member minus a time required for cooking, whereby the electric cooker can finish cooking before return time of the earliest family member; when the timer reaches the cooking start time, the server issues a cooking instruction for the electric cooker, causing the electric cooker to start cooking.

[Citation]

One of the family members obtains the scheduled return time of each family member by telephone. The family member calculates the cooking start time for the electric cooker and sets a timer based on the notification of the scheduled return time of the earliest returning family member. The cooking start time is the scheduled return time of an earliest returning family member minus a time required for cooking, so that the electric cooker can finish cooking before return time of the earliest family member; when the cooking start time is reached, the above-mentioned family member presses the switch of the electric cooker, causing the electric cooker to start cooking.

[Remark]

The difference between the technical content of the citation and the claimed invention lies in the use of a server in place of human executions that include: receiving the scheduled return time of family members, calculating the cooking start time of the electric cooker, setting the timer, and instructing the electric cooker to start cooking.

For increasing the convenience for users, the claimed invention is one that can be simply modified by a person ordinarily skilled in the art, using ordinary methods of system analysis and system design, from systematizing the human performance of daily routine in the citation.

4.2.2.1.2.3 Software Achieving the Functions of Prior Hardware Technology

Inventions that simply use software to realize the functions of existing hardware circuits and do not solve any problems in the softwarization process, belong to those that can be simply modified by a person ordinarily skilled in the art using common knowledge at the time of filing.

Example 1

[Claim]

A printed circuit board inspection device, comprising... a processing module that uses software program to perform comparison of printed circuit board codes.

[Citation]

A printed circuit board inspection device, comprising... a processing module that uses a comparison circuit for comparing printed circuit board codes.

[Remark]

The difference between the technical content of the citation and the claimed invention lies in the use of software to implement the functions of the existing hardware circuit.

For reducing usage of hardware resources and simplifying management of the detection device, the claimed invention is one that can be simply modified by a person ordinarily skilled in the art through softwarization of hardware circuit functions, using common knowledge at the time of filing.

Example 2

[Claim]

A power saving method for a real-time clock counter, comprising... a calculation module, which performs addition operation by a software program.

[Citation]

A power saving method for a real-time clock counter, comprising... a calculation module, which performs addition operation by a half adder.

[Remark]

The difference between the technical content of the citation and

the claimed invention lies in the use of software to implement the functions of the existing hardware circuit.

For reducing the usage of hardware resources and the convenience of maintenance, the invention applied for a patent is one that can be simply modified by a person ordinarily skilled in the art through softwarization of hardware circuit functions, using common knowledge at the time of filing.

4.2.2.1.2.4 Recreating a Common Knowledge at the time of filing in a Computer-generated Virtual Space

If a recreating of a common knowledge at the time of filing in a computer-generated virtual space, or a simple combination of a virtual scene and reality, involves only the use of ordinary system analysis and system design methods, it belongs to those that can be simply modified by a person ordinarily skilled in the art, using common knowledge at the time of filing.

Example 1

[Claim]

A tennis game device, comprising... a processor that sets a rebound speed of a tennis ball over a hard court to be higher than that over a clay court.

[Citation]

A tennis game device, comprising... a processor.

(It is common knowledge at the time of filing that, when hitting a tennis ball with a racket over a hard court and a clay court, respectively, the rebound speed of the tennis ball over the hard court will be greater than the rebound speed over the clay court.)

[Remark]

The difference between the technical content of the citation and the claimed invention merely resides in that, the rebound speed of a tennis ball after bouncing on a hard surface is set to be higher than that of the rebound speed on a clay surface, which is common knowledge at the time of filing, and belongs to those that can be simply modified by a person ordinarily skilled in the art.

Example 2

[Claim]

A racing game device, comprising...a processor that alters the probability of cornering based on road conditions.

[Citation]

A racing game device, comprising...a processor.

(It is common knowledge at the time of filing that the grip level of tires is different under different road conditions; insufficient grip level of the tires during cornering would cause spin-out and loss of control.

[Remark]

The difference between the technical content of the citation and the claimed invention merely resides in that the probability of cornering is set in accordance with the road surface conditions, which is common knowledge at the time of filing, and belongs to those that can be simply modified by a person ordinarily skilled in the art.

Application or Modification Based on a Common Knowledge at the time of filing

Appropriate adjustment or modification of computer software or system, based on common knowledge at the time of filing, to meet the needs of design or usage of the software or system, belongs to those that can be simply modified by a person ordinarily skilled in the art using common knowledge at the time of filing.

Example 1

[Claim]

An online transaction system, comprising... an output device that displays "Thank you for your purchase."

[Citation]

An online transaction system, comprising... an output device.

(It is common knowledge at the time of filing that a seller expresses his/her gratitude to the buyer when concluding a sales contract.)

[Remark]

The difference between the technical content of the citation and the claimed invention merely resides in the display output of a "thank you for your purchase" message, which is common knowledge at the time of filing, and belongs to those that can be simply modified by a person ordinarily skilled in the art.

Example 2

[Claim]

An online trading system, comprising:
a web server that displays a plurality of products on a web page for customers to purchase online;
a transaction server that accepts online purchase request of a customer, and notifies a logistics server to schedule a shipment process upon receipt of online payment;
wherein the customer is provided with an appreciation period, during which return and exchange may be performed upon dissatisfaction with a purchased product.

[Citation]

An online trading system, comprising:
a web server that displays a plurality of products on the web page for customers to purchase online;
a transaction server that accepts online purchase requests of a customer, and notifies a logistics server to schedule a shipment process upon receipt of online payment.
(It is common knowledge at the time of filing that the customer may enjoy an appreciation period, i.e., may return or exchange a product within the appreciation period if unsatisfied)

[Remark]

The only difference between the technical content of the citation and the claimed invention resides in the appreciation period for the customers, i.e., return or exchange of a product is allowed within the appreciation period if a customer is unsatisfied with said product. However, there has long been the cooling-off rule in commercial transaction practice that allows returns and exchanges of purchased products within a period of time, which is common knowledge at the time of filing, and belongs to those that can be simply modified by a person ordinarily skilled in the art.

Example 3

[Claim]

An inventory management system, comprising... an input device

including a mouse or a barcode reader.

[Citation]

An inventory management system, comprising... an input device which is a keyboard.

[Remark]

The difference between the technical content of the citation and the claimed invention lies in the different input devices. However, both the mouse and the barcode reader are commonly used input devices.

For the convenience of input, the claimed invention belongs to those that can be simply modified by a person ordinarily skilled in the art, using common knowledge at the time of filing, through replacing a keyboard with a well-known mouse or barcode reader.

4.2.2.1.2.6 Features that Pose No Contributions to Technical Effect

If the distinguishing technical feature between the claimed invention and the technical content of the citation cannot produce a technical effect, or cannot directly or indirectly produce a technical effect after cooperating with other technical features recited in the claims, that is, it does not contribute to the technical effect (e.g., the distinguishing technical feature merely resides in the business method per se), then such inventions may be regarded as simple variations of common knowledge or simple variations of the business method in the prior art. When making determinations, care should be taken to avoid omitting any technical features in the claim that may contribute to the technical effect, as well as the technical effects that may be directly or indirectly induced by the distinguishing technical feature.

Example 1

[Claim]

A time display interface on a computer screen, the computer obtaining accurate current time through the Internet, and then displaying current time on the computer screen, wherein an appearance of the time display interface adopts a shape of a traditional analog clock.

[Citation]

A time display interface on a computer screen, the computer

obtaining accurate current time through the Internet, and then displaying current time in digital format on the computer screen.

[Remark]

The difference between the technical content of the citation and the claimed invention resides in the adaptation of the appearance of a traditional analog clock for the time display interface, whereby the analog clock appearance offers users a more friendly visual impression. However, such appearance only provides visual effects, and does not cooperate with other technical features to generate technical effects. Thus, such invention belongs to those that can be simply modified by a person ordinarily skilled in the art from the technical content of the citation.

Example 2

[Claim]

An online trading system, comprising:

a web server that displays a plurality of products on a web page for customer online purchase;

a transaction server, which accepts a customer's online purchase request, upon confirmation of purchase by a customer, directly performs online payment in accordance with a pre-input credit card authorization information by the customer, and notifies a logistics server to schedule a delivery process.

[Citation]

An online trading system, comprising:

a web server that displays a plurality of products on a web page for customer online purchase;

a transaction server, which accepts a customer's online purchase request, upon confirmation of purchase by a customer, performs online payment according to credit card authorization information entered by the customer, and notifies a logistics server to schedule a delivery process.

[Remark]

The difference between the technical content of the citation and the claimed invention resides in the different transaction processes. The citation discloses that the customer enters the credit card authorization

information for payment after the confirmation of purchase, while the claimed invention allows the customer to pre-enter the credit card authorization information and make the payment directly after confirming a purchase. Although the claimed invention provides convenience of transaction by allowing subsequent purchases to be made without re-entry of credit card authorization information, it does not contribute to the technical effect, nor does it produce a technical effect after cooperating with other technical features. Thus, such invention belongs to those that can be simply modified by a person ordinarily skilled in the art from the technical content of the citation.

4.2.2.2 Factors Determining Existence of Inventive Step

4.2.2.2.1 Advantageous Effects

A advantageous effect must be a technical effect directly produced by the technical means for implementing the invention; that is, it must be the technical effect directly produced by all the technical features constituting the technical means, and it must be clearly recited in the description, claims, or drawings at the time of filing, or belong to those that can be deduced from the recited content of the description, claims, or drawings at the time of filing by a person ordinarily skilled in the art.

Mathematical effects, commercial effects, aesthetic effects, display effects, etc., produced by mathematical formulas, business methods, information display content, artistic planning, etc., are not technical effects and are not advantageous effects in principle. However, if mathematical formulas, business methods, information display content, artistic planning, etc., involve technical considerations or overcome technical difficulties in the course of implementing the invention, and provide contribution to technical effects, they must still be considered.

Those that can be simply modified by a person ordinarily skilled in the art, e.g., systematization of manual operations or using computers to implement business methods, the obtained effects thereof, e.g., convenience of use, quick processing speed, enhanced accuracy, high data processing volume, information digitization, belong to the general or given effects of using computers or computer software in the computer software related

technical field, and therefore are generally not regarded as advantageous effects.

If an advantageous effect is an "unexpected effect," it can be regarded as a favorable condition in the determination of affirmative factor for inventive step.

4.2.2.2.2 Inventions Having Unpredictable Effects

The so-called "unpredictable effect" means that the claimed invention produces unpredictable effects compared with the relevant prior art, including the generation of significant improvement in effect (quantitative change), or the generation of a new effect (qualitative change), and is unpredictable to a person ordinarily skilled in the art at the time of filing.

For computer software related inventions, if the invention as a whole has unpredictable effects compared to the relevant prior art, it should be deemed that the invention cannot be easily accomplished, and thus possesses inventive step.

The above-mentioned general or given effects, such as convenience of use, quick processing speed, enhanced accuracy, high data processing volume, information digitization, usually do not belong to unpredictable effects.

5. Exemplary Cases

(1) Cases related to Enablement Requirements

Case No.	Title of Invention	Remarks
1-1	Neurocognitive Function Assessment System	AI
1-2	Real estate broker matching system using deep neural network	AI

(2) Cases related to Definition of Invention

Case	Title of Invention	Remarks
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No.		
2-1	Data Structure Products for Customer Data	
2-2	Audio-visual playback device with message prompting function	
2-3	Methods of Market Research and Analysis Using Computer Systems	
2-4	Method and device for calculating the sum of natural numbers	mathematical method
2-5	Method of Data Encryption	mathematical method
2-6	Method of Digital Image Processing	mathematical method
2-7	Method of Storing Data Retrieved Online	
2-8	Computer program product for forecasting sales of merchandise	business method
2-9	Point service method	business method
2-10	Method of Managing Parking Lot	
2-11	Unmanned autonomous vehicle dispatching system and method thereof	
2-12	Neural Network System for Analyzing Reputation of Accommodation	AI
2-13	Traffic Estimation System	AI

(3) Cases related to Inventive Step

Case No.	Title of Invention	Remarks
3-1	Method for Wireless Network Positioning Service	
3-2	Online Matching System	
3-3	Chemical Material Retrieval System	
3-4	Unmanned store management system	IOT
3-5	Traffic Estimation System	AI

5.1 Cases related to Enablement Requirements

Case 1-1: Neurocognitive Function Assessment System

[Claim]

1. A neurocognitive function assessment system, comprising:
 - a toy capable of sensing movements of a person who receives the test and a server;
 - wherein the toy includes a sensing module and an output module, the sensing module generates a motion sensing data upon sensing movement of the person who receives the test that operates the toy, and transmits the motion sensing data to the output module;
 - wherein the server includes:
 - a receiving unit that receives the motion sensing data output by the output module; and
 - a deep learning evaluation unit that trains data set based on a pre-issued action for obtaining an evaluation model;
 - wherein upon input of the motion sensing data to the deep learning evaluation unit, a neurocognitive function evaluation result is generated by using the evaluation model, so as to evaluate whether the neurocognitive function of the person who receives the test conforms to a predetermined range of evaluation.

[Abstract from the Description]

The present invention provides a neurocognitive function evaluation system, which includes a sensor installed in a toy. The system utilizes the motion sensing data generated by the sensor during the interaction between a child and the toy, and employs an output module for outputting the motion sensing data. The output module may be a USB module. The data can be used to analyze the cognitive function and emotional response of the child, and thus further discovers the degree of participation and area of interest, so as to be able to appropriately and effectively obtain the level of neurocognitive function development of the child.

In an embodiment, the head, limbs, front chest, and back of the toy are equipped with pressure sensors, which can sense the magnitude of a force and determine the position of the pressure center, e.g., "left hand, right hand, left shoulder, right shoulder, front chest and back," etc.

In order to predict the degree of neurocognitive development, the

system may collect motion sensing data obtained by multiple sensors installed on the toy including a pressure sensor, and allows a deep learning algorithm to grasp the content collected by these sensors and make predictions. The prediction of a resultant algorithm obtains a certain degree of accuracy and score. By analyzing the score and the corresponding accuracy, the system may evaluate whether the neurocognitive function conforms to a predetermined range of evaluation and output the neurocognitive function evaluation result.

In order to train the deep learning evaluation unit, the deep learning evaluation unit must first be trained with training data, so that the evaluation unit may learn to obtain a corresponding evaluation model; the training data includes various motion features and their corresponding possible diagnoses. The motion features include the strength of the force, the duration, and the degree of deformation of the pressure sensors installed on the head or limbs of the toy.

Upon the completion of training, the deep learning evaluation unit may extract motion features from the motion sensing data, input them into the evaluation model, obtain a score, so as to evaluate whether the neurocognitive function conforms to a predetermined range of evaluation and output a neurocognitive function evaluation result....

[Conclusion]

Does not meet the enablement requirements.

[Reasoning]

The invention recited in claim 1 uses motion training data set to train a deep learning evaluation unit for obtaining an evaluation model, and inputs a motion sensing data sensed by a sensing module into the evaluation model to generate a neurocognitive function evaluation result.

According to the description, the pressure intensity and duration sensed by the sensing module (i.e., pressure sensor) are used as input data, enabling the deep learning evaluation unit (evaluation model) to output the neurocognitive function evaluation results. However, the description does not recite the specific correspondence between the pressure data and the neurocognitive evaluation results, nor does it provide relevant statistical or experimental data to support the relationship between the two. And based on common knowledge at the time of filing, for children's neurocognitive development, it is often assessed by items such as "gross motor skills," "fine motor skills,"

"language and cognition skills," "self-mastery and social skills" that can be completed at different ages (refer to the child development continuum in the "Children's Health Handbook"). While it may be possible to evaluate a child's muscle development status by the simple determinations from the pressure and duration of toy manipulation, it is still impossible to ascertain that the deep learning evaluation unit can generate effective neurocognitive evaluation results accordingly. Therefore, the contents recited in the description does not meet the enablement requirements.

Case 1-2: Real Estate Broker Matching System using Deep Neural Network

[Claim]

1. A matching system for real estate brokers using deep neural networks, comprising:

a database that stores a client data, a real estate item data, and a broker data, and cross labels the client data, real estate item data, and broker data in a plurality of completed cases as a training sample profiles; and

a deep neural network module connected to the database, taking the customer data and the real estate item data of the plurality of completed cases as the input layer data of the deep neural network module, and using labeled broker data of the completed cases as output layer data to train the deep neural network module;

whereby by inputting a client list and real estate item data into the trained deep neural network module, the broker information corresponding to the client list and the real estate item is determined.

[Abstract from the Description]

Whether a real estate can be successfully traded, the broker in charge of the service plays a pivotal role. The success of a transaction is particularly associated with the broker's professional knowledge and service attitude regarding the specific real estate items, such as commercial office, factories, etc. If the matching between the customer, real estate item, and broker can be optimized, the real estate market transactions may be facilitated.

The present invention provides a real estate broker matching system using deep neural network. The system includes a database, which stores customer data, real estate item data, and broker data.

The customer data and real estate item data in a plurality of completed cases are cross labeled with the broker data, and used as the training sample data for the deep neural network module, so that the trained deep neural network module may optimize the matching between a client, real estate item, and a broker, thereby increasing the likelihood of a successful real estate transaction....

[Conclusion]

Does not meet the enablement requirements.

[Reasoning]

The invention recited in claim 1 labels the customer data, real estate item data, and broker data of previously completed cases, and uses them to train a deep neural network module, so that the trained deep neural network module may perform broker matching, based on the client list and real estate item data.

Although the description discloses a total of three types of data, i.e., the customer data, real estate item data, and broker data, as the training sample data, the description does not specifically recite the relationship between these three types of data, or the specific technical content of machine learning regarding how to obtain the best matching results (for example: preprocessing of training data, amount of training data, type of neural network (machine learning algorithm), loss function, and relevant statistics and experimental data to support the best matching results). Even if it can be known, with the consideration of common knowledge at the time of filing, that the client data and broker data usually include personal photos, names, age and address, etc., and the real estate item data usually includes square footage, building age, price and other items, it is still impossible to infer the existence of any form of correlations between the three types of data (client, broker, and real estate item) as mentioned above. It is difficult to ascertain that a trained deep neural network module is inherently capable of achieving the best result in the matching of the client, real estate item, and the broker. The content recited in the description therefore fails to meet the enablement requirements.

5.2 Cases related to the Definition of Invention

Case 2-1: Data Structure Products for Customer Data

[Claims]

1. A data structure product, comprising:
a set of files, wherein each file contains three fields,
the first field stores customer's name,
the second field stores customer address and phone number,
the third field stores customer preferences.

2. A data structure product, comprising:
a set of files, wherein each file contains three fields,
the first field stores customer's name,
the second field stores customer address and phone number,
the third field stores customer preferences;
the data structure product reads the above-mentioned files after being
executed by a computer, and displays the content of the fields on a display
device.

3. A data structure product, comprising:
a set of files, wherein each file contains three fields,
the first field stores customer's name,
the second field stores customer address and phone number,
the third field stores customer preferences;
the data structure product reads the above-mentioned files after being
executed by a computer, and displays a content of the fields of specific files
on a display device according to keywords or conditional expressions.

[Remark]

Currently, merchants have generally used computers to store the communication data of customers. However, when making an address book, they usually only record the name, address, and phone number. The present invention enables merchants to provide personalized services for individual customers by recording customer preferences at the same time, thereby allowing the merchants to provide personalized services to individual customers, and offer a user interface through the

management program of the present invention, which allows a user to search for data content using keywords or conditional expressions....

[Conclusion]

Claim 1 does not meet the definition of invention.

Claim 2 does not meet the definition of invention.

Claim 3 meets the definition of invention.

[Reasoning]

The title of subject matter for claim 1 is "data structure product," but the content of the claim recites only a static memory configuration, which belongs to data format per se and is a mere display of information, and thus does not meet the definition of invention (according to Section 3.3.2.2) .

Compared with claim 1, claim 2 further recites the technical feature of "reads the above-mentioned files after being executed by a computer, and displays the content of the fields on a display device," but it does not recite the specific information processing or computing technical means in accordance with the purpose of information processing (displaying the preference of specific customer). It merely recites the step of information displaying, that is, it does not recite the specific technical means or steps for the cooperative operation of computer software (data structure) and hardware resources, therefore fails to meet the definition of invention (according to Section 3.4).

Claim 3 recites the specific information processing or computing technical means (after being executed by a computer, it reads the data format containing the customer's preference data, and displays it according to keywords or conditional expressions) implemented in accordance with the purpose of information processing (displaying the preference of specific customer). Through the cooperative operation of computer software and hardware resources, a specific information processing device or method has been constructed, so it meets the definition of invention (according to Section 3.4).

Case 2-2: Audio-visual Playback Device with Message Prompting Function

[Claims]

1. An audio-visual playback device with message prompting function, comprising:

a storage component that stores detailed descriptions of a plurality of executable functions;

a display component that displays, on an external display, the executable functions and detailed descriptions of the executable functions.

2. An audio-visual playback device with message prompting function, comprising:

a storage component that stores detailed descriptions of a plurality of functions;

a processing component that detects a current device status, excludes functions that cannot be executed according to the status, and transmits a list of remaining functions to a display component;

the display component displays function options of the list on an external display, and at the same time obtains and displays the detailed description of the function corresponding to the list from the storage component.

[Remark]

Although conventional audio-visual playback devices may possess prompting functions and related descriptions, sometimes certain functions are not suitable to be executed under current status, for example, pressing the play button when no audiovisual disc is placed, or selecting "Next" function when playing the last audio-visual item. During such occasions, the screen may only display a message indicating non-executable or error, but the user has spent extra time selecting an inappropriate function. By detecting a current device status, the present invention may exclude in advance the unsuitable function options, so that the user can be clearly informed which functions can be executed....

[Conclusion]

Claim 1 does not meet the definition of invention.

Claim 2 meets the definition of invention.

[Reasoning]

The invention recited in claim 1 is directed to static data storage ("a storage component that stores detailed descriptions of a plurality of executable functions") and information content displayed on the display ("a display component that displays these data on an external display"), which belongs to pure displaying of information and a non-technical concept, therefore does not meet the definition of invention (according to Section 3.3.2.2).

Claim 2 recites hardware resources such as storage components, display components, and processing components, as well as specific technical means or steps for the cooperative operation of computer software and hardware resources (detect a current device status, exclude functions that cannot be executed according to the status, and send the list of remaining functions to the display component) to achieve specific information processing or calculation in accordance with the purpose of information processing (exclude unsuitable function options in advance, so that users can clearly understand which functions can be executed), therefore meets the definition of invention (according to Section 3.4).

Case 2-3: Methods of Market Research and Analysis Using Computer Systems

[Claims]

1. A method for conducting market research and analysis, comprising:
determining a product to be studied;
selecting a consumer group targeted by the product;
determining questions of a questionnaire according to a type of the consumer group;
sending out the questionnaire and then collecting the questionnaire;
consolidating questionnaire information; and
displaying a consolidated result.
2. A method for conducting market research and analysis using a computer system, comprising:
determining a product to be studied;

- selecting a consumer group targeted by the product;
- determining questions of a questionnaire according to a type of the consumer group;
- sending out the questionnaire, by the computer system through a network, and then collecting the questionnaire; and
- consolidating questionnaire information and displaying a consolidated result by the computer system.

3. A method for conducting market research and analysis using a computer system, comprising:

- determining a product to be studied;
- selecting a consumer group targeted by the product;
- determining questions of a questionnaire according to a type of the consumer group;
- sending out the questionnaire, by the computer system through a network, and then collecting the questionnaire; and
- excluding, by the computer system, the questionnaires that possess similar return time and having all identical answers, and cross-referencing an answer of each of the questions with a basic information of each respondent for the remaining questionnaires.

[Remark]

Generally, when conducting online questionnaire surveys, identical questionnaire results may be repeatedly submitted due to a user continuously clicking the "Send" button, resulting in inaccurate statistical results....

The present invention proposes a method for conducting market research and analysis using a computer system, which includes the following steps: ... after all the questionnaires are input into the computer, the programs in the computer first exclude those with similar return times and all the identical answers to avoid repetitive counting of the same questionnaire; and use prior-arranged trap questions in the questionnaire (such as identical questions but with different order of answers) to exclude questionnaires with contradictory and obvious randomly-filled answers. The program is then used to count the number of each option, and make cross-referencing comparison according to the basic information of the respondents to sort out the consumption trend. If there contains specific

data that differs from the mean by more than two standard deviations, it will be displayed in a special format....

[Conclusion]

Claim 1 does not meet the definition of invention.

Claim 2 does not meet the definition of invention.

Claim 3 meets the definition of invention.

[Reasoning]

The method of conducting market research and analysis in claim 1 is of artificial arrangements by determining the product to be researched, the corresponding consumer groups, and consolidating questionnaire data, etc., which do not utilize the laws of nature, and belong to those evidently fail to meet the definition of invention (according to Section 3.3.2.1).

Although claim 2 recites the use of hardware resources (computer, network) to conduct market research and analysis, in each of the steps, the computer and network are merely used to send questionnaires, collect questionnaires, summarize questionnaires, and display the aggregated results. The method as a whole is still an artificially arranged market research and analysis method, which only uses computers and networks as a tool for artificial arrangement rather than utilizing the laws of nature, and belongs to those evidently fail to meet the definition of invention (according to Section 3.3.2.1). In addition, claim 2 only utilizes computer and network for the transmission and aggregation of questionnaire data. There recites no specific technical means or steps for the cooperative operation of computer software and hardware resources, and cannot achieve specific information processing or computation in accordance with the purpose of information processing (to avoid inaccurate statistics), therefore it still does not meet the definition of invention (according to Section 3.4).

Claim 3 recites hardware resources such as computers and networks, as well as specific technical means or steps for the cooperative operation of computer software and hardware resources (first exclude questionnaires with similar return times and all identical answers, and then for the remaining questionnaires, cross-reference the answers of each question in the questionnaire with the basic information of the respondents), which have achieved specific

information processing or computation in accordance with the purpose of information processing, therefore meets the definition of invention (according to Section 3.4).

Case 2-4: Method and Device for Calculating the Sum of Natural Numbers

[Claims]

1. A method for calculating a sum s of natural numbers from n to $n+k$, which calculates $(k+1)(2n+k)/2$ to obtain the sum s .

2. A device for calculating a sum of natural numbers from n to $n+k$, comprising the following components:

an input device for receiving natural numbers n and k ;

a processor that computes $s=(k+1)(2n+k)/2$; and

an output device that outputs s .

[Remark]

The description recites that if a sum of nature numbers from n to $n+k$ is defined as s , it can be expressed by the following formula:

$$s = n+(n+1)+(n+2)+\dots+(n+k)\dots\dots(1)$$

Even if the order of the right side of the above formula is reversed, the sum remains the same. If arranged in reverse, the sum s can be expressed by the following formula:

$$s = (n+k)+(n+k-1)+ \dots+(n+1)+n\dots\dots(2)$$

If the sum of (1) and (2) is calculated, then

$$2s=(2n+k)+(2n+k)+\dots+(2n+k)\dots$$

On the right side of the above formula, it consists of $(k+1)$ times of $(2n+k)$, therefore

$$2s = (k+1)(2n+k)$$

$$s =(k+1)(2n+k)/2$$

Accordingly, the sum of natural numbers from n to $n+k$ can be easily obtained....

[Conclusion]

Claim 1 does not meet the definition of invention.

Claim 2 does not meet the definition of invention.

[Reasoning]

The invention set forth in claim 1 is a mathematical formula or mathematical method ($s=(k+1)(2n+k)/2$), which belongs to those that does not utilize the laws of nature, and evidently fails to meet the definition of invention (according to Section 3.3.2.1).

Although claim 2 recites hardware resources such as input devices, processors, and output devices, as well as mathematical formulas for calculation, it does not specify the specific technical means for the cooperative operation of computer software and hardware resources, and cannot construct a specific information processing device in accordance with the purpose of information processing (computing the sum s of natural numbers from n to $n+k$), thus does not meet the definition of invention (according to Section 3.4).

Case 2-5: Method of Data Encryption

[Claim]

1. A method of data encryption, comprising following steps:
randomly selecting, by a transmitting device, two non-equal large prime numbers p and q ;
calculating $N = pq$, and $r = \text{lcm}((p-1), (q-1))$;
selecting an integer e less than r , making e and r relatively prime, and obtaining a modulo inverse element of e with respect to r , named d ;
dividing a data to be transmitted into an integer n less than N ;
calculating the e -th power of n and taking a modulus N to obtain an encrypted message c ;
transmitting, by the transmitting device through an electronic transmission medium, the encrypted message c to a receiving device;
receiving, by the receiving device, the encrypted message c ;
calculating the encrypted message c to a d -th power and taking a modulus N , and
obtaining original message n .

[Remark]

The transmission of electronic data on the Internet may suffer the risk of theft. The present invention first divides an electronic data into

blocks of the same size, and then encodes them by mathematical operations, so that even if a third party obtains the signal transmitted on the network, the original data cannot be restored, and only the key holder can correctly encrypt and decrypt.

[Conclusion]

Claim 1 meets the definition of invention.

[Reasoning]

Claim 1 recites the hardware resources such as the transmitting device and the receiving device, as well as specific technical means for information processing such as using mathematical methods to divide a data into blocks of the same size, and encrypting the information (calculating $N=pq$, the data is divided into an integer n less than N , the e -th power of n is calculated and the modulus N is taken to obtain an encrypted message $c...$), which is based on the cooperative operation of computer software and hardware resources in accordance with the purpose of information processing (data encryption), thus constructs a specific method of information processing (data encryption) that meets the definition of an invention (according to Section 3.4).

Case 2-6: Method of Digital Image Processing

[Claim]

1. A method for processing digital images, comprising:
generating an operation matrix in the form of a two-dimensional array containing elements arranged in rows and columns, a size of the operation matrix being substantially smaller than a size of a data array; and
substantially scanning, by the operation matrix, elements of the data array, substantially scanning the data array with a repeated number of cycles such that a core operation matrix generates a surrounding array and replaces the data array with a new array;
wherein the core operation matrix contains multiple elements but remains unchanged during the scanning step, the operation matrix is surrounded by a single surrounding array, and the number of repeated cycles is determined by traditional error minimization techniques until generation and output of a last new data array.

[Remark]

In the present invention, the input digital image data is firstly arranged into a specific two-dimensional array. After the two-dimensional array undergoes specific operations, a new data array is obtained, and the new data array replaces the input digital image data. Accordingly, a picture that is clearer than the original image may be automatically obtained.

[Conclusion]

Claim 1 meets the definition of invention.

[Reasoning]

The invention of claim 1 is to perform calculation or processing on image data (digital image) showing technical properties of objects, so as to obtain information such as numerical values, images, etc. (arranging data into a specific two-dimensional array, and obtaining a new data array after a specific operation), which belongs to those concretely performing information processing based on the technical properties of an object, and evidently meets the definition of invention (according to Section 3.3.1.2).

Case 2-7: Method of Storing Data Retrieved Online

[Claims]

1. A method for storing data retrieved from a network, comprising:
receiving a retrieved data through a network;
display the retrieved data;
determining, by a user, whether the data contains a predetermined keyword, when there is a keyword, executing a storage instruction for an input device; and
storing, by the input device, the data in a memory device according to the storage instruction.
2. A method for storing data retrieved from a network, comprising:
receiving retrieved data through a network;

displaying the retrieved data;

determining, by a data storage determination device, whether the data contains a predetermined keyword, when there is a keyword, executing a storage instruction for an input device; and

storing, by the input device, the data in a memory device according to the storage instruction.

[Remark]

There is vast and complex volume of information on the Internet. In particular, users may subscribe to articles and e-newsletters for certain websites of interest, or allow many websites to actively push articles and e-newsletters to users through the Internet, which may result in the over-storage of unnecessary information in a user's computer or smartphone, thus reducing the available storage space of the memory device....

[Conclusion]

Claim 1 does not meet the definition of invention.

Claim 2 meets the definition of invention.

[Reasoning]

Although claim 1 recites hardware resources such as network, input device, memory device, etc., they are only used for pre/post-data processing activities (receiving data, displaying data, storing data). The recited invention as a whole is a data storage method of human arrangement, and the information processing is carried out according to the mental activities of human beings (determining, by a user, whether the retrieved data received contains a predetermined keyword). It is not an information processing or computing technical means that is implemented by the cooperative operation of computer software and hardware resources in accordance with the purpose of information processing (filtering of information or avoid storage shortage), therefore it does not meet the definition of invention (according to Section 3.4).

Claim 2 recites the cooperative operation of hardware resources (data storage and determination device) and computer software, and concretely performs information processing or computing technical means (determining whether the data has a predetermined keyword,

when there is a keyword, executing a storage instruction for an input device) according to the purpose of information processing (filtering information or avoiding the shortage of storage space), which meets the definition of the invention (according to Section 3.4).

Case 2-8: Computer Program Product for Forecasting Sales of Merchandise

[Claims]

1. A computer program product for forecasting sales volume of merchandise, comprising:

an input module for inputting dates on which the sales volume of merchandise is to be forecasted;

a sales volume data recording module for pre-recording past actual sales volume data;

a variable condition data recording module for pre-recording variable condition data;

a correction rule recording module for recording correction rules;

upon loading of the computer program product into a computer, following steps are performed:

in the past actual sales volume data, according to a data of past few weeks having a same day of week as a date of a sales volume of a merchandise to be forecasted, calculating an average value to obtain a first predicted value;

reading, from the variable condition data recording module, the variable condition data, the variable condition data being associated with the date of the sales volume of the merchandise is to be forecasted, and based on the variable condition data, selecting the correction rule to be applied from the correction condition data recording module, correcting the first predicted value according to the correction rule to be applied to obtain a second predicted value; and

outputting the second predicted value.

2. A computer-readable recording medium that stores the computer program product as claimed in claim 1.

3. A computer system for forecasting sales volume of merchandise, comprising a storage device storing the computer program product as claimed in claim 1.

[Remark]

The estimation of reservation and delivery of the merchandises which will be sold in a store are based on the store's past sales experience, which is prone to the problem of poor prediction accuracy. The present invention uses a computer program to estimate the sales volume of merchandises. The forecasting is based on the average sales volume data of the same day of the week as the date of the sales volume to be predicted in the sales volume data in the past 3 to 4 weeks, plus variable conditions data (e.g. weather forecast about the chance of rain on the date of forecast of sales) and the correction rules to be applied (e.g., when it rains in the morning and afternoon, the sales volume is reduced by 30%), thereby calculating a forecast value for the sales of the merchandise.

[Conclusion]

Claim 1 meets the definition of invention.
Claim 2 meets the definition of invention.
Claim 3 meets the definition of invention.

[Reasoning]

The content of claim 1 has recited the concrete technical means or steps (data processing or calculation based on past actual sales volume, variable condition data, and correction rules, reading variable condition data through the variable condition data recording module, selecting the correction rule to be applied from the correction rule recording module, etc.) performed by the cooperative operation of computer software and hardware resources in accordance with the purpose of information processing (forecast of sales volume of merchandise), which meets the definition of invention (according to Section 3.4).

Claims 2 and 3 recite the computer program product of claim 1. If the above claim 1 meets the definition of invention, claims 2 and 3 also meet the definition of invention.

Case 2-9: Point Service Method

[Claims]

1. A point service method for providing points according to amount of goods purchased by a customer through telephone shopping, the method comprising:

notifying, through telephone, a gift point value and a name of a recipient;

according to the name of recipient, obtaining the recipient's phone number from a customer list storing device;

accumulating the gift point value under the recipient's name stored in the customer list storing device; and

notifying the recipient, by telephone, a completion of gift point value transfer, using the recipient's phone number.

2. A point service method for providing points according to amount of goods purchased by a customer in an online store, the method comprising:

notifying, through a network, a gift point value and a name of a recipient;

according to the name of recipient, obtaining the recipient's email address from a customer list storing device;

accumulating the gift point value under the recipient's name stored in the customer list storing device; and

notifying the recipient, via email, a completion of gift point value transfer, using the recipient's email address.

3. A point service method for providing points according to amount of goods purchased by a customer in an online store, the method comprising:

inputting, via a network, a gift point value and a name of a recipient to a server;

obtaining, by the server, from a customer list storing device according to the name of recipient, the recipient's email address;

accumulating, by the server, the gift point value under the recipient's name stored in the customer list storing device; and

notifying the recipient, by the server via email, a completion of gift point value transfer, using the recipient's email address.

[Remark]

Many merchants provide gift points according to the corresponding amount of purchases by customers, thereby encouraging the return of customers for the accumulation of points in exchange for gifts, coupons, or other discounts. However, in the past, no point service was provided for telephone shopping or online shopping, and based on the management of customer information, points can only be accumulated under the name of the purchaser, and points cannot be shared among the purchaser's family members. According to different modes of telephone shopping or online shopping, in the present invention, a shopper may specify, via a phone or network, to which customer's name the gift points may be accumulated under (not necessarily the shopper himself/herself). The merchant then notifies the customer the obtaining of gift points.

[Conclusion]

Claim 1 does not meet the definition of invention.

Claim 2 does not meet the definition of invention.

Claim 3 meets the definition of invention.

[Reasoning]

Although claim 1 recites technical means such as telephone, customer list storage device, etc., claim 1 as a whole still belongs to an artificially arranged point service method, and these technical means are merely used as tools in the artificial arrangement. Therefore, claim 1 is not of those that utilize the laws of nature, and does not meet the definition of invention (according to Section 3.3.2.1).

While claim 2 recites technical means such as network, customer list storage device, email, etc., claim 2 as a whole still belongs to an artificially arranged point service method, and these technical means are merely used as tools in the artificial arrangement. Therefore, claim 2 is not of those that utilize the laws of nature, and does not meet the definition of invention (according to Section 3.3.2.1).

Claim 3 recites a series of information processing steps performed by the server, including receiving the relevant point value and the recipient's name through the network, accumulating the points under the recipient's name in the customer list, obtaining the recipient's email address, and email

notification to the recipients, etc. The invention of claim 3 is based on the purpose of information processing ((point management and notification)), through the cooperative operation of computer software and hardware resources (network, server, customer list storage device) to perform the above-mentioned specific information computation or processing, which has constructed a specific information processing device (server) or method, and thus meets the definition of invention (according to Section 3.4).

Case 2-10: Method of Managing Parking Lot

[Claims]

1. A parking lot management method, comprising:
obtaining vehicle identification data of a vehicle when the vehicle passes through an entrance of the parking lot;
recording the vehicle identification data together with a time of entrance of the vehicle as a parking data; and
sending the parking data to a user's portable electronic device.

2. A parking lot management method, comprising:
obtaining, by a vehicle detector, vehicle identification data of a vehicle when the vehicle passes through an entrance of the parking lot, and sending the vehicle identification data to a management device;
generating, by the management device according to the vehicle identification data, a parking data associated with the vehicle, and correspondingly recording the parking data and the vehicle identification data in a parking data management unit;
sending, by the management device, the parking data stored in the parking data management unit, to a payment machine; and
transmitting, by the payment machine, the parking data to a user's portable electronic device.

[Remark]

For the management of parking lot in the past, parking lot administrators used manual paper records for registering the license plate number and time of entrance and departure for the vehicles, so as to perform charging and control. In order to facilitate the management of parking lot, in the present invention, a vehicle detector is installed at the entrance and exit of the parking lot, and a management device is provide to manage the vehicle identification data obtained by the vehicle detector. When the user's smartphone transmits the vehicle identification data to the payment machine, the payment machine will transmit the vehicle identification data to the management device. The management device compares the vehicle identification data and then transmits the time of entrance of the vehicle into the parking lot to the payment machine. The payment machine then transmits the time of entrance of the vehicle into the parking lot to a user's smartphone.

[Conclusion]

Claim 1 does not meet the definition of invention.

Claim 2 meets the definition of invention.

[Reasoning]

The invention of claim 1 is an artificially arranged parking lot management method, and the portable electronic device (smart phone) mentioned is merely used as a tool in the artificial arrangement, thus does not meet the definition of invention (according to Section 3.3.2.1).

Claim 2 has recited the means or steps (the management device generating parking data and recording it in the parking data management unit, transmitting the parking data to the payment machine, etc.) for implementing specific information processing or computation technical means through the cooperative operation of computer software and hardware resources in accordance with the purpose of information processing (processing and management of parking data), and has constructed a specific information processing system or method, thus meets the definition of invention (according to Section 3.4).

Case 2-11: Unmanned Autonomous Vehicle Dispatching System and Method thereof

[Claims]

1. An unmanned autonomous vehicle dispatching system, comprising a vehicle dispatching server, a portable electronic device for a vehicle dispatching user, and an unmanned autonomous vehicle, wherein when the vehicle dispatching server receives a request for dispatching a vehicle to a specified location from the vehicle dispatching user, the vehicle dispatching server dispatches the unmanned autonomous vehicle to the vehicle dispatching user.

2. A method for dispatching unmanned autonomous vehicles, which is implemented by an unmanned autonomous vehicle dispatching system comprising a vehicle dispatching server, a portable electronic device for a vehicle dispatching user, and an unmanned autonomous vehicle, the method comprising: dispatching, by the vehicle dispatching server, the unmanned autonomous vehicle to the vehicle dispatching user upon receipt of a request for dispatching a vehicle to a specified location from the vehicle dispatching user.

3. An unmanned autonomous vehicle dispatching system, the system comprising a vehicle dispatching server, a portable electronic device for a vehicle dispatching user, and an unmanned autonomous vehicle, wherein:

the portable electronic device includes a transmitting unit for transmitting a user ID and dispatching location to the vehicle dispatching server;

the vehicle dispatching server includes: a storage unit for storing facial images corresponding to a plurality of user IDs; an acquisition unit for acquiring facial image corresponding to the user ID transmitted by the portable electronic device from the storage unit, a designating unit for designating dispatch-able ones of the unmanned autonomous vehicle in accordance with a location information and usage status of the unmanned autonomous vehicle; and a transmitting unit for transmitting the dispatching location and the facial image to the designated unmanned autonomous vehicle; and

the unmanned autonomous vehicle includes: an automatic driving unit for automatically driving the vehicle to the dispatching location; a face

authentication unit for performing facial recognition processing on surrounding personnel at the dispatching location; and a determining unit for determining whether the facial image recognized and processed by the face authentication unit and the facial image from the transmitting unit are consistent with each other, so as to determine the vehicle dispatching user and allow him to use the unmanned autonomous vehicle.

4. A method for dispatching unmanned autonomous vehicles, which is implemented by an unmanned autonomous vehicle dispatching system comprising a vehicle dispatching server, a portable electronic device for a vehicle dispatching user, and an unmanned autonomous vehicle,

wherein the vehicle dispatching server includes a storage unit, and the storage unit stores user facial images corresponding to a plurality of user IDs, the method including:

transmitting, by the portable electronic device, the user ID and the dispatching location to the vehicle dispatch server;

executing, by the vehicle dispatching server, the following steps of: obtaining the facial image corresponding to the user ID transmitted by the portable electronic device from the storage unit; obtaining the facial image corresponding to the user ID transmitted by the portable electronic device from the storage unit; designating a dispatch-able one of the unmanned automatic driving vehicle according to a location information and usage status of the unmanned autonomous vehicle; transmitting the dispatching location and the facial image to the designated unmanned autonomous vehicle;

performing, by the designated unmanned autonomous vehicle, the following steps of: automatically driving to the dispatching location by an autonomous driving unit; performing facial recognition process by a facial authentication unit on surrounding personnel at the dispatching location, determining whether the facial image recognized and processed by the face authentication unit and the facial image from the transmitting unit are consistent with each other, so as to determine the vehicle dispatching user and allow him to use the unmanned autonomous vehicle.

[Remark]

In amusement parks or theme parks, amusement vehicles that depart at a fixed time interval and travel on a fixed route are usually provided as one of the means for tourists to move in the venue. In order to allow the tourists to

move more freely in the amusement park, the present invention utilizes the unmanned autonomous vehicle and the personal information of the tourists for authentication, so as to perform vehicle dispatching and distribution.

[Conclusion]

Claims 1 and 2 do not meet the definition of invention.

Claims 3 and 4 meet the definition of invention.

[Reasoning]

While claim 1 recites hardware resources such as vehicle dispatching servers, portable electronic devices, and unmanned autonomous vehicles, it merely describes that when the vehicle dispatching server receives a request from a user to dispatch vehicles to a specified location, the device will allocate a vehicle to the user, but does not recite the relevant control content of the unmanned autonomous vehicle. It thus does not belong to those that concretely execute the control of machine or the accompanying control. In addition, it does not recite information processing related to vehicle dispatching, and cannot be determined whether it has recited the technical means or steps of specific information processing in accordance with the purpose of information processing of dispatching unmanned autonomous vehicles. Therefore, the invention set forth in claim 1 does not constitute a specific information processing system or method implemented by concrete means or steps of the cooperative operation of computer software and hardware according to the purpose of information processing. Therefore, it does not meet the definition of invention (according to Section 3.4).

Claim 2 does not meet the definition of invention for the same reasons as claim 1.

Claim 3 recites the specific information processing or computation (steps such as vehicle dispatching server obtaining the facial image corresponding to the vehicle dispatching user's ID from the storage unit, transmitting the facial image to the unmanned automatic driving vehicle, and the unmanned automatic driving vehicle making determination using the received facial image and the recognition of the facial images of surrounding personnel) in accordance with the purpose (dispatching of unmanned autonomous vehicles) of information processing, which is implemented by

the concrete technical means of the cooperative operation between the aforementioned computer software and hardware resources, and constructs a specific information processing system. Therefore, claim 3 meets the definition of invention (according to Section 3.4).

Claim 4 meets the definition of invention for the same reasons as claim 3.

Case 2-12: Neural Network System for Analyzing Reputation of Accommodation

[Claim]

1. A neural network system for analyzing accommodation reputation, the system enables a computer to generate quantitative output values of a plurality of accommodation reputations according to text data of accommodation reputation, the system comprising:

a first neural network and a second neural network, an input of the second neural network being an output of the first neural network;

the first neural network including a network between an input layer and a middle layer of a feature extraction neural network, and a number of neurons in at least one middle layer of the feature extraction neural network is smaller than a number of neurons in the input layer, the number of neurons in the input layer of the feature extraction neural network is equal to a number of neurons in the output layer of the feature extraction neural network, and a weight of the feature extraction neural network is trained in such a way that an input value of the input layer is gradually equal to an output value of the output layer;

a weight of the second neural network is trained without changing the weight of the first neural network;

the system causing the computer to execute, based on the weights trained in the first and second neural networks, the computation of a frequency of occurrence of each particular word in a text data of accommodation reputation responsively input to the input layer of the first neural network and a quantitative output value of the plurality of accommodation reputations output by the second neural network output layer.

[Remark]

When using neural network to analyze the textual data of hotel accommodation reputation on travel websites, it is difficult to intuitively select the truly suitable input feature value because of the diversity of text data.

One purpose of the present invention is to provide a neural network model for a computer to generate quantitative output values related to the reputation of the accommodation according to the textual data of the

reputation of the accommodation. The model can output a quantified reputation value (for example: 10 stars) according to the frequency of occurrence of specific words in the text data of accommodation reputation.

Specifically, based on the trained weights and response functions in the first neural network and the second neural network, the present invention performs calculation in response to the input value of the input layer of the first neural network (frequency of specific words in a textual data of accommodation reputation, e.g. by performing word formation analysis), and outputs an output result of the second neural network output layer (quantified reputation value, for example: 10 stars).

The first neural network includes an input layer, and the input layer is an input layer of the first half of the feature extraction neural network. This feature extraction neural network is often referred to as an autoencoder. In this neural network, the number of neurons in the middle layer is smaller than the number of neurons in the input layer, and the number of neurons in the input layer is equal to the number of neurons in the output layer. In addition, the response functions of each neuron in the input layer and the output layer are linear, and the response functions of other neurons are all sigmoid functions.

The present invention connects the part of the neural network that has been trained with weights, between the input layer and the middle layer of the aforementioned feature extraction neural network, to the second neural network as the first neural network, and trains the second neural network without changing the weights of the first neural network. The aforementioned training utilizes the well-known back propagation method.

[Conclusion]

Claim 1 meets the definition of invention.

[Reasoning]

Claim 1 recites that, through the cooperative operation of computer software and hardware resources, a specific information processing system is constructed according to the specific information processing or computing (weight training of the first and second neural networks, and based on the

weights trained in the first and second neural networks, to execute the computation of a frequency of occurrence of each particular word in a text data of accommodation reputation responsively input to the input layer of the first neural network and the quantitative output value of the plurality of accommodation reputation output by the output layer of the second neural network, etc.) technical means for the purpose of information processing (accurate analysis of accommodation reputation), thus meets the definition of invention (according to Section 3.4).

Case 2-13: Traffic Estimation System

[Claim]

1. A system for estimating a number of vehicles passing through an ETC (electronic toll collection) toll gate in a road section, comprising:

a data reading unit, capable of reading historical data about a number of vehicles passing through an ETC toll gate of a road section from an ETC control station;

a neural network unit, established by a processor, and pre-trained using a historical data of a number of vehicles passing through the ETC toll gate of the road section; the neural network unit including an input layer and an output layer: an input data of the input layer including a historical data of a number of vehicles passing through the ETC toll gate of this road section before a specific time point; the output data of the output layer is an estimated value of a number of vehicles passing through the ETC toll gate of this road section at the specific time point;

a comparison unit for comparing a difference between an estimated number of vehicles output by the output layer of the neural network unit and an actual value of a number of vehicles passing through the ETC toll gate of the road section at the specific time point, if the difference exceeds a threshold value, determining that the number of vehicles on the road section is abnormal; and

a map marking unit for automatically marking or warning the road section determined to be abnormal on an electronic map.

[Remark]

The present invention uses a neural network model to predict the traffic flow, and automatically marks or warns the road sections determined to be abnormal on the electronic map, so as to provide real-time road information for road users or for the competent authority to control the traffic flow.

[Conclusion]

Claim 1 meets the definition of invention.

[Reasoning]

Claim 1 recites a system for estimating the number of vehicles passing through the ETC toll gate of a road section, reading the traffic flow data

passing through the ETC toll gate of a road section from the ETC control station, and using the traffic flow data to train a neural network for establishing a prediction system for passing through the ETC toll gate, which is an information processing or computing technical means (a data reading unit, which can read historical data about the number of vehicles passing through the ETC toll gate of this road section from the ETC control station; a neural network unit, ...; the neural network unit includes an input layer and an output layer: the input data of the input layer includes...; a comparison unit for comparing the difference between the estimated value of the number of vehicles output by the output layer of the neural network unit and the actual value of the number of vehicles passing through the ETC toll gate of this road section at the specific time point, if the difference value exceeds a threshold value, the number of vehicles in the road section is determined to be abnormal) that is concretely implemented in accordance with the purpose of information processing (predict traffic flow) through the cooperative operation of computer software and hardware resources, thus meets the definition of invention (according to Section 3.4).

5.3 Cases Related to Inventive Step

Case 3-1: Method for Wireless Network Positioning Service

[Claim]

1. A method for wireless network positioning service, comprising the following steps:

- providing a wireless positioning device to a customer free of charge;
- automatically obtaining, by the wireless positioning device, a current location thereof; and
- displaying, by the wireless positioning device, relevant information near the current location.

[Remark]

With the built-in wireless network positioning module, a device can acquire its location, and combine the location with a map or exhibition information, store information, etc., to provide wireless positioning related services.

However, wireless positioning devices such as smart phones, tablet computers are expensive, and not all customers can own them, so that wireless positioning related services cannot be popularized. Therefore, the present invention provides a wireless positioning device that can be borrowed free of charge in places with wireless positioning services, such as service desks in art galleries, department stores and the like.

[Citation]

A wireless network device can automatically obtain the current position by utilizing wireless network positioning technology, and display nearby related information (did not mention the provision of free wireless location devices to customers).

[Conclusion]

Claim 1 does not possess inventive step.

[Reasoning]

Comparing the invention of claim 1 with the disclosed technical content of the citation, the difference rests in that the citation does not disclose the

step of "providing a wireless positioning device to customers free of charge," but the difference is merely an artificial arrangement of business method, and does not produce advantageous technical effect. In addition, providing specific items free of charge for customers to use is a customary business practice to attract customers or provide customer service, and is a practice of common knowledge at the time of filing. Therefore, the invention of claim 1 is one that can be easily accomplished by a person ordinarily skilled in the art, through simple variation of the technical content of the citation, according to common knowledge at the time of filing, for the purpose of attracting customers or providing customer services, thus does not possess inventive step.

Case 3-2: Online Matching System

[Claim]

1. An online matching system, comprising:
a server that accepts logins from a plurality of user terminals;
entering, by each of the user terminals upon login, basic information including user name, gender, age, and interests; and
randomly matching, by the server, each of the user terminals in pairs, and transmitting the basic information of each user terminal to a paired party.

[Citation]

A matching system that randomly matches each of the logged-in user terminals in pairs by a central server, and transmits the data of the user terminals to the other paired party, wherein the data includes a mugshot, email address, mobile phone number and the like.

[Conclusion]

Claim 1 does not possess inventive step.

[Reasoning]

Comparing the invention of claim 1 with the disclosed technical content of the citation, the difference lies in the data content of the user terminal. Nevertheless, regardless of the mugshot, email, mobile phone number (disclosed by the citation), or user name, gender, age, etc. (recited in claim 1), they are all common customer identification data items, which belong to common knowledge at the time of filing. In order to solve specific problems such as customer matching requirements or condition setting, a person ordinarily skilled in the art can simply modify the user terminal data content items of the citation (mugshot, email, mobile phone number) to the user name, gender, age, etc., so that the invention of claim 1 can be easily accomplished. In addition, the difference in the content of the aforementioned data does not produce a advantageous technical effect, thus claim 1 does not possess inventive step.

Case 3-3: Chemical Material Retrieval System

[Claims]

1. A chemical material retrieval system, comprising:

a chemical material property data storage device for storing the corresponding relationships between chemical material names, chemical material usage, and chemical structural formulas of a plurality of chemical materials;

a chemical material sales data storage device for storing the corresponding relationships between chemical material names, a price of the chemical material per gram and a name of the sales company of a plurality of chemical materials;

an input device for inputting chemical material usage or chemical structural formula as a search keyword;

a chemical material property data retrieval device for deriving, from the chemical material property data storage device, a name of the chemical material, a the chemical material usage, and a chemical structure formula corresponding to the input search keyword based on the search keyword input by the input device;

a chemical material sales data retrieval device for obtaining a corresponding chemical material price per gram and a sales company name from the chemical material sales data storage device based on the chemical material name derived by the chemical material property data retrieval device; and

a display device for displaying a chemical material name, chemical material usage, and chemical structural formula obtained by the chemical material property data retrieval device, and a corresponding chemical material price per gram and a sales company name obtained by the chemical material sales data retrieval device.

2. The chemical material retrieval system according to claim 1, wherein the chemical material property data storage device stores a use of the chemical material B represented by the chemical structural formula A: circuit substrate cleaning agent.

[Primary Citation]

A device for retrieving chemical materials, comprising:

a chemical material data storage device for storing a correspondence between a name of the chemical material, a usage of the chemical material, and a chemical structural formula;

a retrieval device for retrieving chemical materials based on chemical material usage or chemical structural formula; and

a display device for displaying search results.

[Other Citation]

A device for searching for books, comprising:

a book information storage device for storing a correspondence between book titles, book types and keywords of a plurality of books;

a book sales data storage device for storing a correspondence between titles, prices and publishers of the books;

an input device for inputting book types or keywords as search keywords;

a book information retrieval device, based on the input search keyword, deriving from the book information storage device the book name, type and keyword corresponding to the search keyword input by the input device;

a book sales information retrieval device for obtaining a price and publisher name of the corresponding book from the book sales information storage device based on the book title obtained by the book sales information retrieval device; and

a display device for displaying the book title, book type and keyword obtained by the book information retrieval device, and a corresponding book price and publisher name obtained by the book sales data retrieval device.

[Remark]

The chemical material B represented by the chemical structural formula A is a prior art prior to application. However, the specific use of chemical material B as a "circuit substrate cleaning agent" is not a prior art prior to the application, and is unpredictable by a person ordinarily skilled in the art of chemical materials.

[Conclusion]

Claim 1 does not possess inventive step.

Claim 2 does not possess inventive step.

[Reasoning]

Comparing the invention of claim with the primary citation, the difference lies in that the retrieval device of the primary citation does not specifically search for the name of the chemical material, and the primary citation does not disclose a device for the storage and retrieval of the commercial transaction information such as the price of the chemical material and the name of the sales company, as shown in the following summary table.

Claim 1 (chemical material retrieval system)	Primary Citation (device for retrieving chemical materials)	Other Citation (device for searching for books)
chemical material property data storage device	chemical material data storage device	book information storage device
chemical material sales data storage device	—	book sales data storage device
input device	(implied)	input device
chemical material property data retrieval device	retrieval device (did not perform retrieval according to the name of a chemical material)	book information retrieval device
chemical material sales data retrieval device	—	book sales information retrieval device
display device	display device	display device

Although the device of the other citation is used in the search of books, the technical content of the other citation has disclosed that keywords (book titles) are extracted from a storage device (book information storage device), and then the keywords are used to further search another storage device (book sales data storage device), thereby obtaining the commercial transaction information (book price and publisher name) of a specific object, this has been a prior art in the field of computer technology.

Since the primary citation and the other citation belong to the technical field of retrieval device, and share the common function of retrieving keywords and displaying search results, there is no particular technical difficulty if the retrieval techniques of the other citation are applied to the chemical material retrieval device of the primary citation.

For a person ordinarily skilled in the art, when it is necessary to enable the chemical material retrieval device of the primary citation to obtain relevant commercial transaction information, there is a motivation of combination to apply the retrieval device of the other citation to the primary citation. In addition, using the "price per gram of chemical materials" and the corresponding "sales company's name" as the commercial transaction information for storage and retrieval is the application of common knowledge (using the correspondence between sales unit price and sales source as business transaction information). Moreover, the effect of retrieving the commercial transaction information of chemical materials achieved in claim 1 is also expected after combining the primary citation and the other citation. Therefore, the invention of claim 1 belongs to those that can be easily accomplished, by a person ordinarily skilled in the art, via simple modification through the combination of the primary citation. Therefore, claim 1 does not possess inventive step.

Claim 2 is a dependent claim of claim 1. Although the primary citation and the other citation do not disclose "the use of the chemical material property data storage device for storing the chemical material B represented by the chemical structural formula A: circuit substrate cleaning agent," the aforementioned ancillary technical features are only to define the content of the stored data. Whether there is such a data content or the difference in the data content only affects the displayed retrieval result, and provides no advantageous effect on the retrieval device. In addition, the specific data content stored in the storage device can be easily modified by a person ordinarily skilled in the art based on their needs, thus claim 2 does not possess inventive step.

Case 3-4: Unmanned Store Management System

[Claim]

1. An unmanned store management system, comprising:
at least one shelf for placing goods;
a cloud-based unmanned store management device in wireless connection with each of the at least one shelf; and
at least one consumer user terminal, wirelessly connected to the cloud-based unmanned store management device;
wherein the cloud-based unmanned store management device includes:
a sales data collection unit for obtaining image data sensed by an image sensor and at least one infrared sensor disposed on the shelf;
an analysis unit that analyzes the image data and generates a sales data;
a computing unit connected to the sales data collection unit for generating a shopping reward scheme through the sales data;
a transmission unit in connection with the computing unit and the at least one consumer user terminal, the transmission unit transmits the shopping reward scheme to the at least one consumer user terminal; and
a database, in connection with the sales data collection unit and the computing unit, the database stores the sales data and the shopping reward scheme generated by the computing unit;
the at least one consumer terminal further includes a checkout unit having an additional reward scheme, wherein the additional reward scheme is to give a preferential discount to a checkout amount of the at least one consumer terminal.

[Primary Citation]

A store management system, comprising:
at least one shelf for placing goods;
a store management device that includes a sales data collection unit for obtaining sales data of goods paid by consumers and sales data of goods regularly counted by employees;
a computing unit connected to the sales data collection unit, the computing unit generates a shopping reward scheme through the sales data of goods checked out by consumers;
a transmission unit for transmitting the shopping reward scheme to a consumer user terminal; and
a database in connection with the sales data collection unit and the

computing unit, the database stores the sales data obtained by the sales data collection unit and the shopping reward scheme generated by the computing unit.

[Other Citation]

A smart store system, comprising:

a product storage device, including an infrared sensing unit and configured to accommodate at least one product, the product being provided with an sensing label for generating a product quantity change information when the product leaves or enters the product storage device;

a backstage device connected to the product storage device for receiving the product quantity change information, the backstage device comprising a database unit and a processing unit, the database unit storing a product inventory information; and

an inventory device connected to the backstage device and including an image sensing unit and a touch display unit, the image sensing unit being configured to generate a product information upon scanning a barcode of the product;

whereby upon scanning of the barcode of the product by the inventory device, the touch display unit displays product sales information including an inventory quantity of the products, a quantity stored in the product storage device, and expiration dates of the products, and thus enables intelligent inventory, expiration dates control, and replenishment through modifying a product quantity and mastering of a product replenishment quantity by the processing unit.

[Conclusion]

Claim 1 does not possess inventive step.

[Reasoning]

Comparing the invention of claim 1 with the primary citation, the differences lie in that: (1) The primary citation obtains the product sales data through the consumer's checkout and regular manual inventory, and does not utilize the sensing and analysis of image data to obtain the product sales data. (2) The primary citation does not mention any preferential scheme that gives preferential discounts on the checkout amount.

For difference (1): The other citation have disclosed that the product quantity change information is generated by the infrared sensing unit of the product storage device, and the (barcode) image of the product is scanned by the image sensing unit of the inventory device to generate the product sales data.

Because the primary citation and other citation are both about store management systems, they belong to the same technical field, and they are both dealing with product management problems such as product reserve or inventory, thus they share similarities in the problems to be solved. Since the other citation teaches the use of infrared sensors and image sensing units to obtain sales data of product quantity, a person ordinarily skilled in the art should have the motivation to use the technical means of the other citation to replace the manual methods of the primary citation in order to improve the control of product quantity and the convenience of obtaining product sales data. As for the aforementioned difference (2), giving preferential discounts to the checkout amount is only a usual commercial promotion method, such as giving a fixed discount at checkout (300 dollars off a 3000 dollar purchase) or a fixed percentage discount based on the consumption amount (30% off, 20% off, 10% off, etc.), which can be easily accomplished by the application of common knowledge or the systematization of human transaction activities or business methods, and have not produced technically advantageous effects. Therefore, the invention of claim 1 is of those that can be easily accomplished by a person ordinarily skilled in the art through simple modification by combining the technical content of the primary citation and the other citation, which lacks inventive step.

Case 3-5: Traffic Estimation System

[Claim] (same as Case 2-13)

1. A system for estimating a number of vehicles passing through an ETC (electronic toll collection) toll gate in a road section, comprising:

a data reading unit, capable of reading historical data about a number of vehicles passing through an ETC toll gate of a road section from an ETC control station;

a neural network unit, established by a processor, and pre-trained using a historical data of a number of vehicles passing through the ETC toll gate of the road section; the neural network unit including an input layer and an output layer: an input data of the input layer including a historical data of a number of vehicles passing through the ETC toll gate of this road section before a specific time point; the output data of the output layer is an estimated value of a number of vehicles passing through the ETC toll gate of this road section at the specific time point;

a comparison unit for comparing a difference between an estimated number of vehicles output by the output layer of the neural network unit and an actual value of a number of vehicles passing through the ETC toll gate of the road section at the specific time point, if the difference exceeds a threshold value, determining that the number of vehicles on the road section is abnormal; and

a map marking unit for automatically marking or warning the road section determined to be abnormal on an electronic map.

[Primary citation]

A system for estimating the number of passing vehicles using a regression equation model, which can receive historical data on the number of passing vehicles at the toll station and estimate the number of passing vehicles in real time.

[The other citation]

A system for predicting the flow of people in a station using a neural network, which uses the historical data of the station's flow of people to train a neural network model in advance, and then uses the trained neural network model to predict the flow of people at a specific point of time. The system is further combined with an electronic map, and is capable of immediately displaying warnings in case of an abnormality, so as to aid the allocation of

the station's traffic volume and shift intensity.

[Conclusion]

Claim 1 does not possess inventive step.

[Reasoning]

Compared with the technical content disclosed in the primary citation, the invention of claim 1 is different in that the primary citation does not utilize a neural network to estimate traffic flow, and does not disclose the function of combining the traffic flow estimation result with an electronic map to provide warnings. However, the aforementioned differences have been seen in the other citation. Since both the primary citation and the other citation belong to the technical fields related to computer software, and they both use mathematical models to deal with problems related to traffic management, they share similarities in technical fields, problem to be solved, and functions or effects. Thus a person ordinarily skilled in the art would have motivation to combine the primary citation with the other citation. Moreover, using neural networks to improve the accuracy of prediction is a problem that is easy to conceive in the technical field of computer software. Therefore, a person ordinarily skilled in the art should be motivated to apply the neural networks of the other citation to or replace the regression equation model of the primary citation, and further combine an electronic map to provide warnings, thus easily accomplishing the invention of claim 1. Therefore, claim 1 does not possess inventive step.