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Zhifan IP Attorneys

Chinese Patent Law and Practice:

— — Updates and Recent Trends in Artificial Intelligence

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Outlines

- Introduction of Zhifan IP Attorneys
- Relevant Changes in laws and regulations
- Subject matter eligibility
- Standards for novelty and obviousness
- Recent nullity cases
- Advice to applicants



A few words about our firm

- **Staff number:** 400+, 80+% professionals;
- **Services:** Full range IP, mainly patent, trademark, litigation, opinion work;
- **Technologies:** Full coverage of all technical fields and industries;
- **Locations:** Headquartered in Beijing, 11 branches across China;
- **Working languages:** Chinese, English, German, French, Japanese, Korean;



Relevant changes in laws & Regulations

- A new section added in Chapter 9, Part II of the *Guidelines for Patent Examination*

Section 6. Relevant Provisions on Examination of Patent Applications for Invention Comprising Algorithm Features or Business Rule/Method Features



Relevant changes in laws & Regulations

- **Overall consideration of *Section 6***

Algorithm features or business rule/method features in a claim shall not be simply separated from technical features in examination. All features comprised in the claim shall be considered as integrated to analyse the technical measures applied, technical problem resolved, and technical effects achieved...



Subject matter eligibility--Article 25 test

- What Claimed is an abstract algorithm or purely a business rule/method, no any technical features, e.g.
 - a method of building a mathematical model without any technical feature;
 - a method of refunding consumers according to consumption sum without any technical feature;

--ineligible, excluded by Article 25, paragraph I, item II



Subject matter eligibility--Article 25 test

- What claimed comprises technical features in addition to algorithm or business method and is not a rule or method for mental activities as a whole;

--shall NOT be excluded by Article 25, paragraph I, item II;
proceed to Article 2, paragraph II test.



Subject matter eligibility--Article 2 test

- What claimed comprises technical features in addition to algorithm or business method and is not a rule or method for mental activities as a whole;
AND the features closely relevant to compose a technical solution for a technical problem with technical effects;

--eligible



Subject matter eligibility--examples

CN104850531:

A method for building a mathematical model comprising training an initial characteristic extracting model according to a characteristic value in a training sample of a first classification task and a characteristic value in a training sample of at least one second classification task to obtain a target characteristic extracting model; wherein the second classification task is other classification task related to the first classification task; respectively processing the characteristic value in each training sample of the first classification task to obtain an extracted characteristic value corresponding to each training sample; forming an extracted training sample with the extracted characteristic value corresponding to each training sample and a label value to train an initial classification model to obtain a target classification model; forming the mathematical model of the first classification task with the target classification model and the target characteristic extracting model.



*The solution is to optimize an abstract modeling method, involving no any technical feature, related to no any specific fields of use, **belongs to rules and methods of mental activities. --ineligible***



Subject matter eligibility--examples

CN106156807:

A method for training a Convolutional Neural Network (CNN) model, the method comprising:
acquiring, by an information processing apparatus, a plurality of initial training images including characters in different languages; and
processing, by the information processing apparatus, each of the plurality of initial training images to generate a plurality of training images, the plurality of training images including one or a combination of a plurality of first training images and a plurality of second training images for training the CNN model, wherein
each of the plurality of first training images has a predetermined height and a predetermined width, and
each of the plurality of second training images has a predetermined height and a width that is determined based on the predetermined height.



*Data processed in each step are image data, a technical feature. The solution overall embodies the relevance of algorithm and image information processing **belongs to technical solution prescribed in Article 2. --eligible***



Subject matter eligibility--examples

CN107592292:

A computer-implemented method for improving security of a blockchain network comprising:
obtaining, by a first node of the blockchain network, a first certificate authority (CA) trust list comprising a plurality of CA identifiers;
receiving, by the first node from a second node of the blockchain network, a communication request comprising a public key certificate of the second node;
determining a first CA identifier from the received public key certificate;
determining whether the first CA identifier matches one of the plurality of CA identifiers of the first CA trust list;
in response to determining that the first CA identifier matches one of the plurality of CA identifiers of the first CA trust list, approving, by the first node, the communication request; and
in response to determining that the first CA identifier does not match one of the plurality of CA identifiers of the first CA trust list, denying, by the first node, the communication request.



*By carrying CA in requests and presetting CA trust list to limit objects allowed to be connected thereby improving information security, **belongs to technical solution prescribed in Article 2. --eligible***



Standard for novelty & obviousness

When checking novelty and inventiveness, algorithm features, business rule/method features that functionally in mutual support and interaction with technical features shall be considered as integrated with the technical features.

Functionally in mutual support and interaction means the algorithm features, business rule/method features are in close combination with the technical features to compose a solution for a technical problem and achieve relevant technical effects.



Standard for novelty & obviousness

- **If** a claimed algorithm is applied to a specific technical field to solve a specific technical problem, the algorithm can be deemed as functionally in mutual support and interaction with technical features. The algorithm composes a part of the applied technical measures. Contribution of the algorithm to the solution shall be considered in inventiveness examination.
- **If** implementation of claimed business rule/method requires regulation or improvement by the technical features, the business rule/method shall be deemed functionally in mutual support and interaction with the technical features. Contribution of the rule/method to the solution shall be considered in inventiveness examination.



Standard for novelty & obviousness--examples

CN104217107:

A method for detecting a tumbling state of a humanoid robot based on multi-sensor information comprising

(1) building a sensor information fusion model of hierarchical structure by fusing posture sensor information, zero moment point (ZMP) sensor information, and robot stepping stage information;

(2) determining stability of the robot in forward-backward directions and left-right directions utilizing a forward-backward fuzzy decision system and the left-right fuzzy decision systems respectively, wherein the determining comprises:

- ① determining the stepping stage of the robot based on the contact status between the robot's supporting feet and the ground and the offline gait planning;
- ② fuzzifying the position information of the ZMP points utilizing a fuzzy inference algorithm;
- ③ fuzzifying the pitch angle or rolling angle of the robot utilizing the fuzzy inference algorithm;
- ④ determining the output membership function;
- ⑤ determining the fuzzy inference rules according to steps ① to ④;
- ⑥ Defuzzifying.

to be continued...



Standard for novelty & obviousness--examples



Cited prior art disclosed gait planning of a humanoid robot and its feedback control as well as determining the robot's stability based on relevant fusion information. The disclosure comprises step (1) of the present application, but not the specific processes of step (2).

Posture sensor information, ZMP sensor information, and stepping stage information used as input parameters of the fussy algorithm to determine the stability information so as to provide basis to output next posture adjusting instructions.

The algorithm and the technical features functionally support each other and interact to each other, thereby improving accuracy of determination of the stability of the robot and its possible tumbling direction.

The specific processes in step (2) were not disclosed in prior art, nor belong to common knowledge in the art, and **possesses inventiveness**.



Standard for novelty & obviousness--examples

CN102169347

A multi-robot path planning system based on a cooperative co-evolution and multi-population genetic algorithm, wherein

(1) a path of a robot is represented by a chromosome, the chromosome being represented in a link form of nodes, i.e., $[(x, y), \text{time}]$, $(x, y, \text{time} \in \mathbb{R})$, (x, y) represents a position coordinate of the robot; time represents the consumption of time required to move to the present node from the previous node, the time of the start node being 0, for chromosome of each individual robot, the initial position of the initial node and the target position of the end node being fixed, the intermediate node and the number of nodes being variable;

(2) the fitness function of the path $\text{Path}(j)$ of each robot $\text{Robot}(i)$ being represented as $\phi(p_i, j)$:

$$||p_i, j|| = \text{Distance}(p_i, j) + w_s \times \text{smooth}(p_i, j) + w_t \times \text{Time}(p_i, j)$$

wherein $||p_i, j||$ is the linear combination of distance, smoothness, and time consumption, w_s is the smooth weight factor, w_t is the time weight factor, $\text{Distance}(p_i, j)$ represents path length, $\text{smooth}(p_i, j)$ represents path smoothness, $\text{Time}(p_i, j)$ represents time consumption;

each robot utilizes the fitness function to obtain the optimized path by optimization of a Messy genetic algorithm.

to be continued...



Standard for novelty & obviousness--examples



Cited prior art 1 discloses a multi-robot path planning method based on a cooperative co-evolution in which a fitness function is used to obtain the optimized path by optimization of a chaotic genetic algorithm(not Messy genetic algorithm as in the present invention).

Cited prior art 2 discloses multiple genetic algorithms including Messy genetic algorithm utilized to optimise paths.

The two prior arts belong to the same technical field and relate to same technical problem. There exists motivation for one skilled in the art to combine the two to obtain the solution of the present invention.

--possesses NO inventiveness.



Relevant nullity cases recently concluded

Invalidation Decision No.: 55072;

Subject Patent: ZL201910958076.8, A Method for Establishing a Scrap Steel Grading Neural Network Model;

Cited prior art:

D1: CN109919243A, 2019-06-21, A CNN-based Waste Steel Type Automatic Identification Method and Device;

D2: Inception-v4, Inception-ResNet and the Impact of Residual Connections on Learning”, Christian et al, 2016-08-23;

D3: Research on Fine-grained Image Recognition Based on Deep Learning, Hesun CHEN, 2018-03-21;



Relevant nullity cases recently concluded

Key points of the decision:

- Application scenarios different: Identifying Scrap Steel Grad vs. Identifying Scrap Steel Type
- Specific steps different: grading step not disclosed in D1;
- Key parameters and applied modules different: specific parameters like color, edge characters, textural characters etc. not disclosed in D1;
- D2 discloses a distinguishing module of extracting image characters utilizing CNN neural network, but not disclose which image characters to be extracted, nor disclose the application scenario;
- D3 does not describe to which application scenario the extracted character data are to be applied, nor describe specific technical problems to be solved;



Relevant nullity cases recently concluded

Conclusion:

The subject patent possesses inventiveness against cited prior arts and any of their combination. **The patent is maintained.**



Advice to applicants

Drafting Description:



- Clearly describe the application scenarios and the specific technical problem under the scenarios;
- Description of the solution should combine technical features, algorithm features, and/or business rule/method features to describe the solution as an integrity. Not only the function of each feature should be described, but also the close relevance among the features as well as the relevance between each feature and the overall technical effects of the solution.
- Technical effects like improvement of system architecture, processing efficiency, processing accuracy, and man-machine interaction etc. and the relevance of the effects and the features should be described sufficiently to assist embodying inventiveness;



Advice to applicants

Drafting Claims:



- A solution should comprise not only technical features, but also algorithm features and/or business rule/method features;
- More importantly, the relevance among the features should be described so as to form an integrated solution.

Speaker Profile

- Registered Patent Attorney before SIPO;
- Practice Patent from 2001;
- Electrical & electronic engineering
- Vice President at Zhifan IP Attorneys

After graduated from Beijing Jiaotong University and North China Electric Power University with Bachelor and Master degrees in 1992 and 1999 respectively, I worked as an engineer for 9 years majored in locomotive design and manufacturing, automatic control of thermal power plant, hydro-electric power plant and substations, as well as steel rolling and casting systems.

From 2001, I have been working as a patent attorney representing clients from China and overseas for over 2000 patent applications and over 100 patent dispute cases in fields of telecommunication, computer science, semiconductor, physics, mechanics, etc.

I am a member of ACPAA, AIPLA, INTA, FICPI, and China IP Research Society.



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THANKS FOR YOUR ATTENTION
Questions please



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