CLAIMS

1. A method for constructing a time series anomaly detection model, the method comprising the following steps:

acquiring a time series data set comprising time series data of one or more factors;

generating a training data set based on the time series data set; and

training a neural network model using at least the training data set to construct the time series anomaly detection model, wherein a layer bias parameter in the neural network model is modulated based on entropy information determined by the training data set.

2. The method according to claim 1, wherein acquiring the time series data set comprises:

taking data generated by each factor within each time period of a plurality of continuous time periods as the time series data of the factor; and

acquiring the time series data set based on the time series data of each of the one or more factors.

3. The method according to claim 1, wherein generating the training data set based on the time series data set comprises:

converting the time series data set into a matrix form to generate the training data set.

4. The method according to claim 2 or 3, wherein converting the time series data set into a matrix form to generate the training data set comprises:

taking the time series data of each factor in the time series data set as a row of elements or a column of elements in a matrix to generate the training data set, wherein each element in the row of elements or the column of elements corresponds to the data generated by the factor within each time period.

5. The method according to claim 1, the method further comprising:

determining whether an anomaly exists in the time series data based on a continuous change trend of the time series data of each factor;

determining a time series anomaly label corresponding to the time series data of each factor according to a determination result to obtain a time series anomaly label set corresponding to the time series data set; and

updating the trained neural network model using a loss function based on the time series anomaly label set and an output of the trained neural network model, to construct the time series anomaly detection model.

6. The method according to claim 1, wherein the neural network model comprises:

a first layer constructed using a first activation function and a first layer bias parameter modulated based on the entropy information determined by the training data set;

a second layer constructed using a second activation function and a second layer bias parameter modulated based on the entropy information determined by the training data set; and

an output layer constructed using a softmax function.

7. The method according to claim 6, wherein the neural network model is further constructed by:

determining an input of the first activation function based on a first layer weight and the training data set;

determining an input of the second activation function based on a second layer weight and an output of the first layer; and

determining an input of the softmax function based on an output of the second layer.

8. The method according to claim 1, wherein the layer bias parameter in the neural network model is modulated by:

modulating the layer bias parameter through multiplying the entropy information determined by the training data set by the layer bias parameter in the neural network model.

9. The method according to claim 4, wherein the entropy information is determined by the following steps:

for each row of elements or each column of elements in the training data set, determining a probability factor of each element in the row of elements or the column of elements relative to the elements in the row of elements or the column of elements;

determining an information amount of the elements in the row or the column using the probability factor; and

taking the information amount of the elements in the row or the column as the entropy information of the time series data of the factor corresponding to the elements in the row or the column.

10. The method according to claim 9, wherein the probability factor is determined by the following step:

taking a ratio of each element in the row or the column to a sum of the elements in the row or the column as the probability factor.

11. The method according to claim 1, wherein the time series anomaly detection model is used at least for correcting a weight of the one or more factors according to the time series data of the one or more factors in an analytic hierarchy process method.

12. A system for constructing a time series anomaly detection model, wherein the system comprises:

a memory;

a processor coupled to the memory; and

a computer program stored on the memory and running on the processor, wherein running of the computer program causes the following operations:

acquiring a time series data set comprising time series data of one or more factors;

generating a training data set based on the time series data set; and

training a neural network model using at least the training data set to construct the time series anomaly detection model, wherein a layer bias parameter in the neural network model is modulated based on entropy information determined by the training data set.

13. A computer-readable storage medium, comprising instructions, wherein the instructions, when run, execute the method for constructing a time series anomaly detection model according to any one of claims 1-11.

14. An analytic hierarchy process method, comprising the following steps:

acquiring a first weight of each of a plurality of factors associated with a target task;

acquiring time series data of each factor, and acquiring a second weight of each of the plurality of factors at least based on the time series data of each factor using the time series anomaly detection model constructed by the method for constructing a time series anomaly detection model according to any one of claims 1-11; and

determining a target weight corresponding to each of the plurality of factors based on the first weight and the second weight.

15. An analytic hierarchy system, comprising:

a memory;

a processor coupled to the memory; and

a computer program stored on the memory and running on the processor, wherein running of the computer program causes the following operations:

acquiring a first weight of each of a plurality of factors associated with a target task;

acquiring time series data of each factor, and acquiring a second weight of each of the plurality of factors at least based on the time series data of each factor using the time series anomaly detection model constructed by the method for constructing a time series anomaly detection model according to any one of claims 1-11; and

determining a target weight corresponding to each of the plurality of factors based on the first weight and the second weight.