CLAIMS

1. A method for training a matrix generator comprising a factor discrimination model and a hierarchical scoring model, the method comprising the following steps:

acquiring a set of factor feature combinations, as well as a factor discrimination label and a hierarchical scoring label for each of the factor feature combinations;

training a first neural network model using the set of factor feature combinations and the factor discrimination label for each of the factor feature combinations as a first training set, and updating a trained first neural network model using a first loss function to obtain the factor discrimination model; and

training a second neural network model using the set of factor feature combinations and the hierarchical scoring label for each of the factor feature combinations as a second training set, and updating a trained second neural network model using a second loss function to obtain the hierarchical scoring model,

wherein the second loss function is constructed based at least on a factor discrimination result output by the factor discrimination model and a reciprocal of a hierarchical scoring result output by the trained second neural network model.

2. The method according to claim 1, wherein the matrix generator is used to generate a comparison matrix based on a plurality of input factors in an analytic hierarchy process.

3. The method according to claim 1, wherein acquiring the set of factor feature combinations comprises:

acquiring a plurality of factors and a semantic vector for each of the plurality of factors;

combining the semantic vector for each of the plurality of factors into a set of factor features;

pairwise combining the factor features in the set of factor features to generate a plurality of factor feature pairs; and

using the plurality of factor feature pairs as the set of factor feature combinations, wherein each of the factor feature combinations comprises a semantic vector of a first factor and a semantic vector of a second factor.

4. The method according to claim 3, wherein acquiring the factor discrimination label for each of the factor feature combinations comprises:

acquiring the factor discrimination label for each of the factor feature combinations based on importance of the first factor relative to the second factor.

5. The method according to claim 4, wherein acquiring the factor discrimination label for each of the factor feature combinations further comprises:

setting the factor discrimination label to a first value in response to determining that the first factor is more important than the second factor; and

setting the factor discrimination label to a second value in response to determining that the second factor is more important than the first factor.

6. The method according to claim 3, wherein acquiring the hierarchical scoring label for each of the factor feature combinations comprises:

acquiring the hierarchical scoring label for each of the factor feature combinations based on a degree of importance of the first factor relative to the second factor.

7. The method according to claim 6, wherein acquiring the hierarchical scoring label for each of the factor feature combinations further comprises:

determining a score for representing the degree of importance of the first factor relative to the second factor;

setting the hierarchical scoring label to the score in response to the first factor being more important than the second factor; and

setting the hierarchical scoring label to a reciprocal of the score in response to the second factor being more important than the first factor.

8. The method according to claim 1, wherein the first loss function is constructed based on the factor discrimination label for each of the factor feature combinations and the factor discrimination result output by the trained first neural network model.

9. The method according to claim 1, wherein updating the trained first neural network model using the first loss function comprises:

adjusting parameters of the trained first neural network model using the first loss function until the first loss function is in a convergence state, to obtain the factor discrimination model.

10. The method according to claim 1, wherein the second loss function is constructed based on the hierarchical scoring label for each of the factor feature combinations, the factor discrimination result output by the factor discrimination model, the hierarchical scoring result output by the trained second neural network model, and the reciprocal of the hierarchical scoring result output by the trained second neural network model.

11. The method according to claim 1, wherein updating the trained second neural network model using the second loss function comprises:

adjusting parameters of the trained second neural network model using the second loss function until the second loss function is in a convergence state, to obtain the hierarchical scoring model.

12. A method for constructing a comparison matrix, comprising the following steps:

acquiring a set of factor features; and

inputting the set of factor features into a matrix generator to obtain a comparison matrix, wherein the matrix generator is trained using the method for training a matrix generator according to any one of claims 1-11.

13. A system for constructing a comparison matrix, comprising:

an acquiring unit configured to acquire a set of factor features; and

a matrix generator configured to process the set of factor features to obtain the comparison matrix, wherein the matrix generator is trained using the method for training a matrix generator according to any one of claims 1-11.

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

acquiring a set of factor features of a plurality of factors associated with a target task;

inputting the set of factor features into a matrix generator to obtain a comparison matrix, wherein the matrix generator is trained using the method for training a matrix generator according to any one of claims 1-11;

processing the comparison matrix to determine priorities of the plurality of factors; and

performing a consistency test on the comparison matrix using the priorities of the plurality of factors, and determining weights of the plurality of factors using the comparison matrix having passed the consistency test.

15. An analytic hierarchy process system, comprising:

a memory;

a processor coupled to the memory; and

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

acquiring a set of factor features of a plurality of factors associated with a target task;

inputting the set of factor features into a matrix generator to obtain a comparison matrix, wherein the matrix generator is trained using the method for training a matrix generator according to any one of claims 1-11;

processing the comparison matrix to determine priorities of the plurality of factors; and

performing a consistency test on the comparison matrix using the priorities of the plurality of factors, and determining weights of the plurality of factors using the comparison matrix having passed the consistency test.