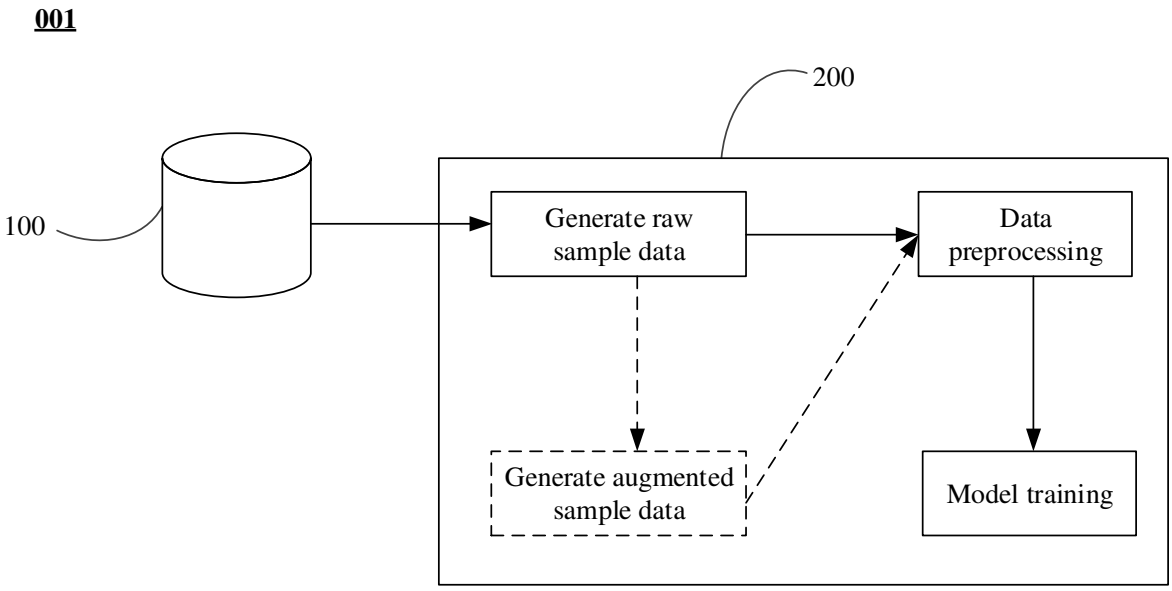

001
200
100
Generate raw sample data
Data preprocessing
Generate augmented sample data
Model training

FIG. 1

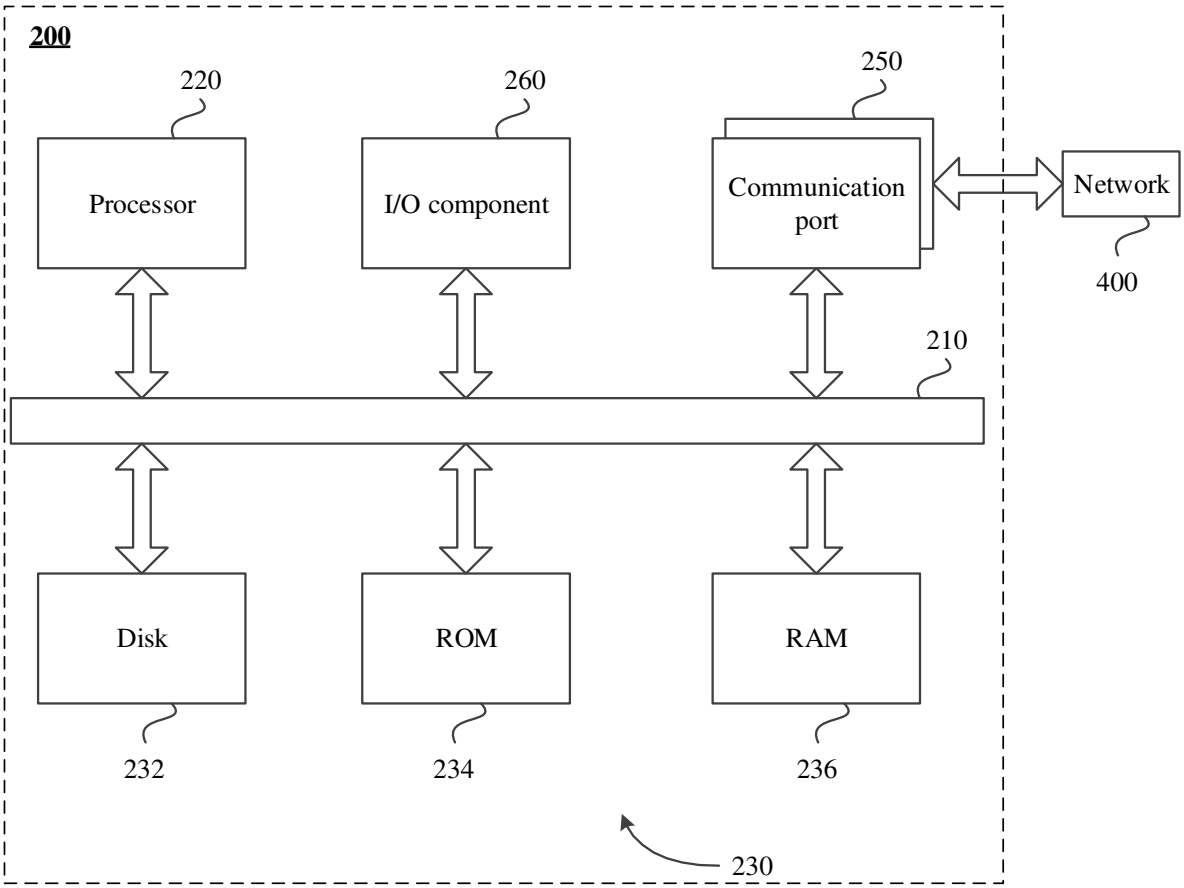

200
220
260
250
Processor
I/O component
Communication port
Network
400
210
Disk
ROM
RAM
232
234
236
230

FIG. 2

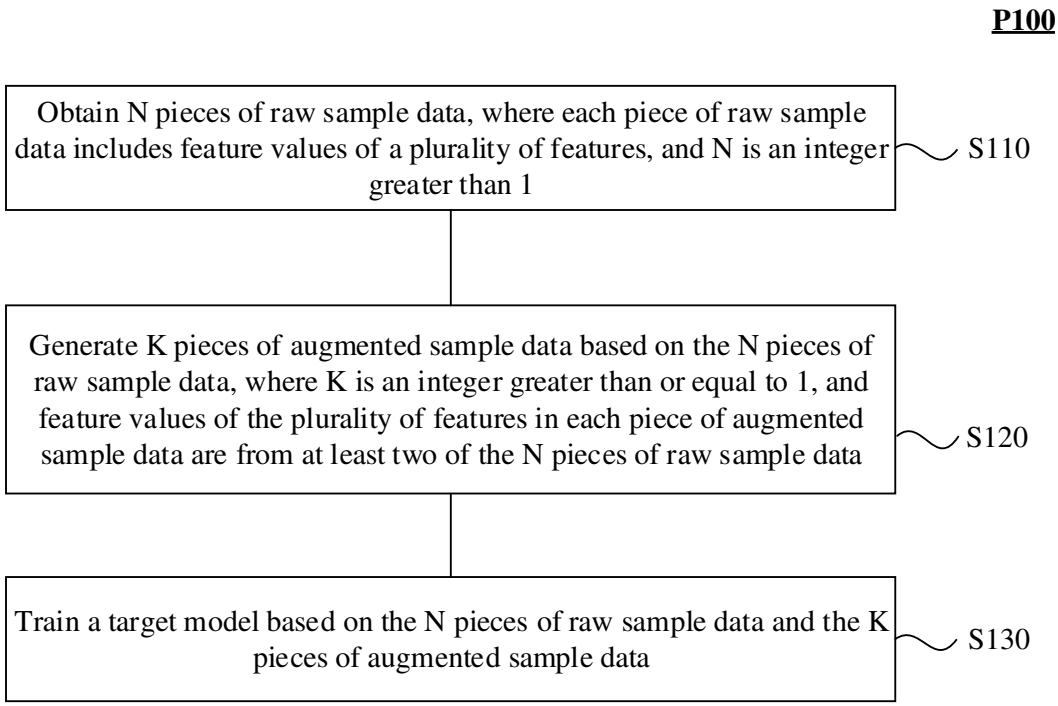

P100
Obtain N pieces of raw sample data, where each piece of raw sample data includes feature values of a plurality of features, and N is an integer greater than 1
S110
Generate K pieces of augmented sample data based on the N pieces of raw sample data, where K is an integer greater than or equal to 1, and feature values of the plurality of features in each piece of augmented sample data are from at least two of the N pieces of raw sample data
S120
Train a target model based on the N pieces of raw sample data and the K pieces of augmented sample data
S130

FIG. 3

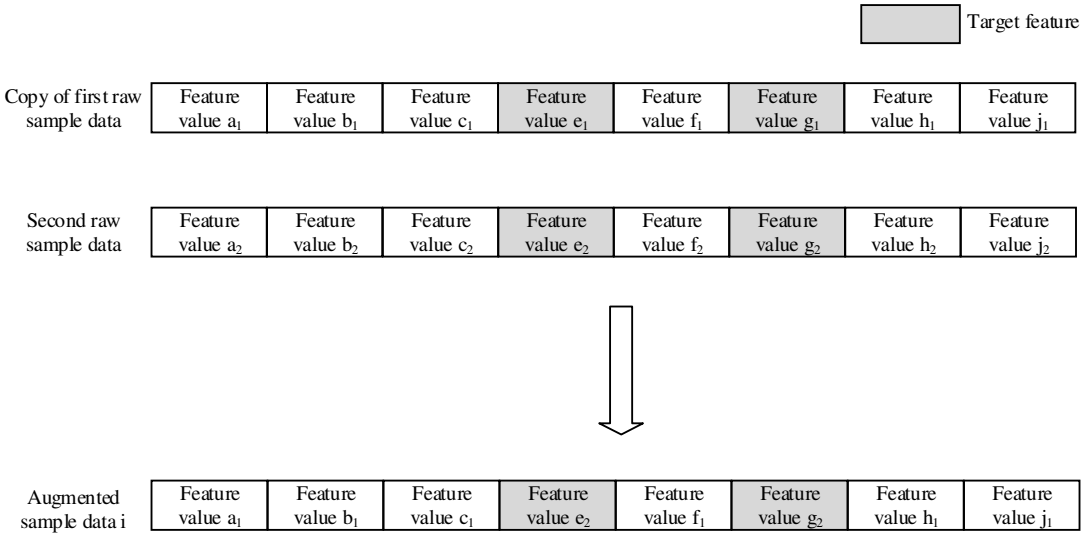

Target feature
Copy of first raw sample data
Feature value a_1
Feature value b_1
Feature value c_1
Feature value e_1
Feature value f_1
Feature value g_1
Feature value h_1
Feature value j_1
Second raw sample data
Feature value a_2
Feature value b_2
Feature value c_2
Feature value e_2
Feature value f_2
Feature value g_2
Feature value h_2
Feature value j_2
Augmented sample data i
Feature value a_1
Feature value b_1
Feature value c_1
Feature value e_2
Feature value f_1
Feature value g_2
Feature value h_1
Feature value j_1

FIG. 4

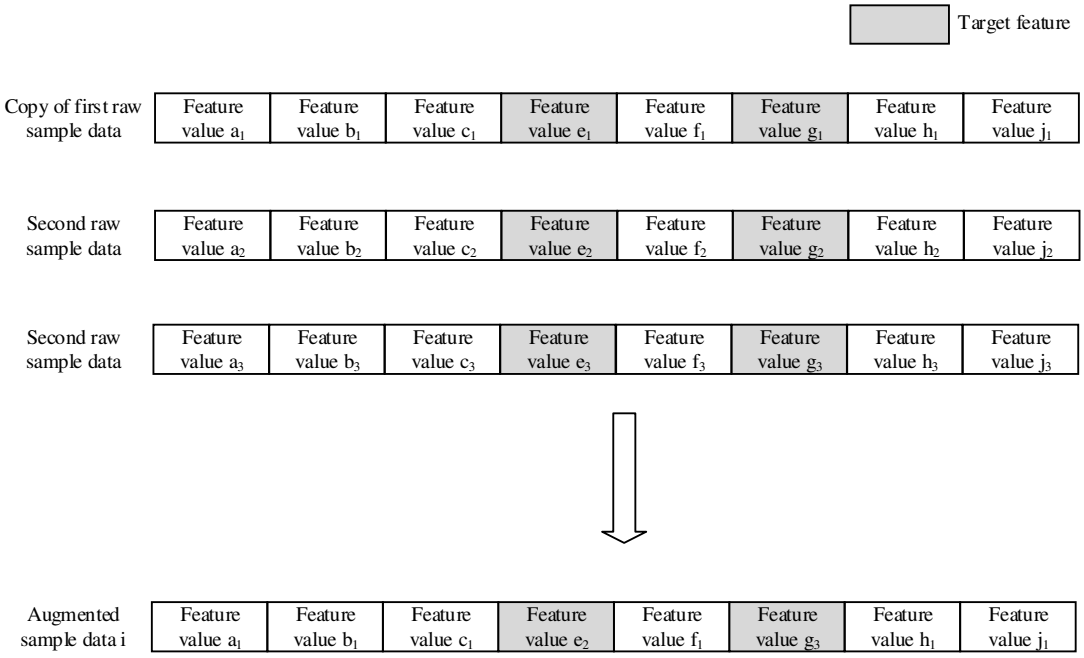

Target feature
Copy of first raw sample data
Second raw sample data
Second raw sample data
Augmented sample data i
Feature value a_1
Feature value b_1
Feature value c_1
Feature value e_1
Feature value f_1
Feature value g_1
Feature value h_1
Feature value j_1
Feature value a_2
Feature value b_2
Feature value c_2
Feature value e_2
Feature value f_2
Feature value g_2
Feature value h_2
Feature value j_2
Feature value a_3
Feature value b_3
Feature value c_3
Feature value e_3
Feature value f_3
Feature value g_3
Feature value h_3
Feature value j_3

FIG. 5

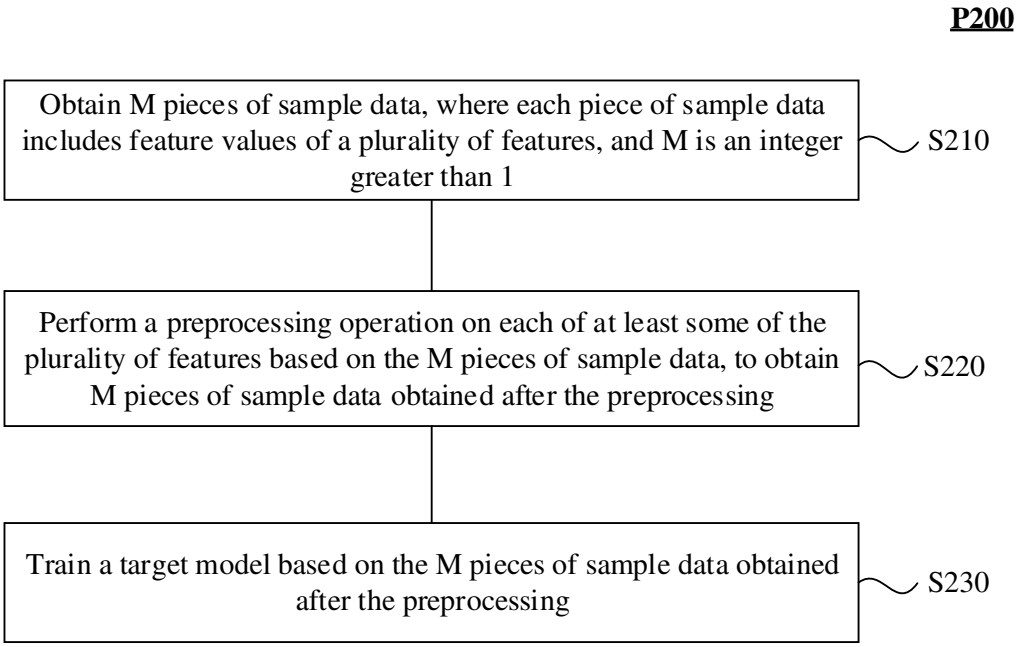

P200
Obtain M pieces of sample data, where each piece of sample data includes feature values of a plurality of features, and M is an integer greater than 1
S210
Perform a preprocessing operation on each of at least some of the plurality of features based on the M pieces of sample data, to obtain M pieces of sample data obtained after the preprocessing
S220
Train a target model based on the M pieces of sample data obtained after the preprocessing
S230

FIG. 6

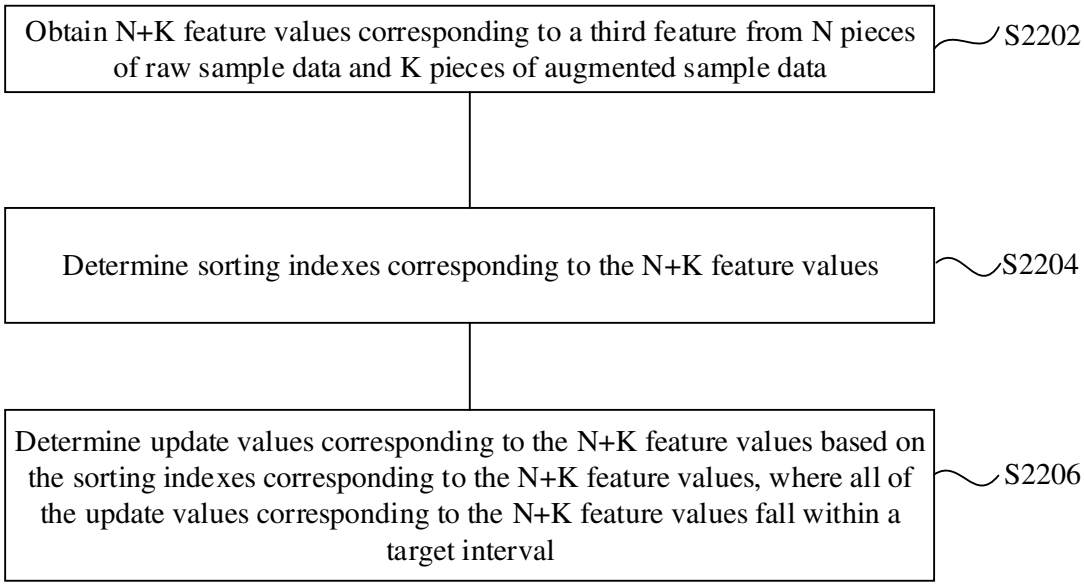

Obtain N+K feature values corresponding to a third feature from N pieces of raw sample data and K pieces of augmented sample data
S2202
Determine sorting indexes corresponding to the N+K feature values
S2204
Determine update values corresponding to the N+K feature values based on the sorting indexes corresponding to the N+K feature values, where all of the update values corresponding to the N+K feature values fall within a target interval
S2206

FIG. 7

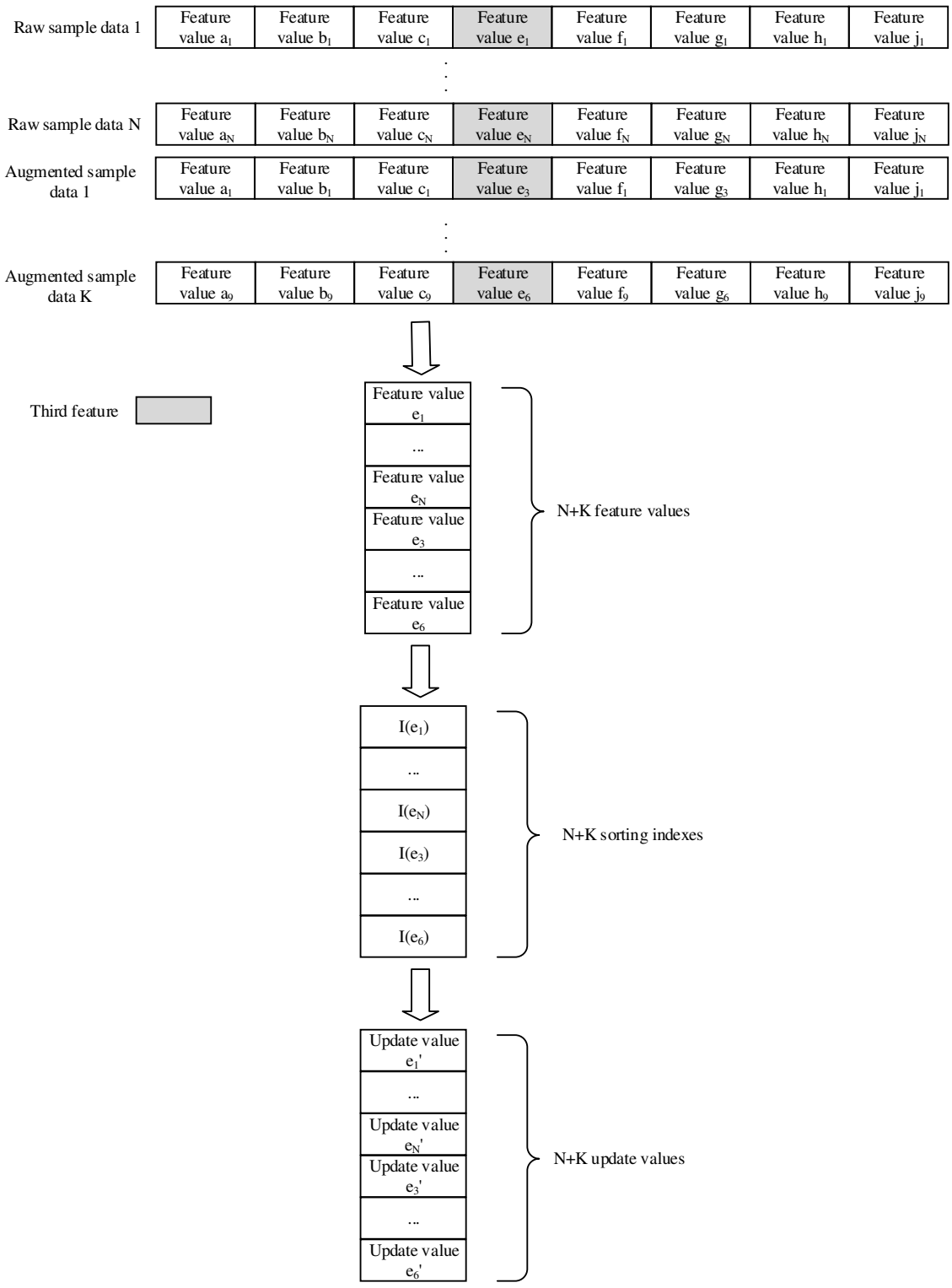

Raw sample data 1
Feature value a_1
Feature value b_1
Feature value c_1
Feature value e_1
Feature value f_1
Feature value g_1
Feature value h_1
Feature value j_1
Raw sample data N
Feature value a_N
Feature value b_N
Feature value c_N
Feature value e_N
Feature value f_N
Feature value g_N
Feature value h_N
Feature value j_N
Augmented sample data 1
Feature value a_1
Feature value b_1
Feature value c_1
Feature value e_3
Feature value f_1
Feature value g_3
Feature value h_1
Feature value j_1
Augmented sample data K
Feature value a_9
Feature value b_9
Feature value c_9
Feature value e_6
Feature value f_9
Feature value g_6
Feature value h_9
Feature value j_9
Third feature
Feature value e_1
...
Feature value e_N
Feature value e_3
...
Feature value e_6
N+K feature values
$I(e_1)$
...
$I(e_N)$
$I(e_3)$
...
$I(e_6)$
N+K sorting indexes
Update value e_1'
...
Update value e_N'
Update value e_3'
...
Update value e_6'
N+K update values

FIG. 8