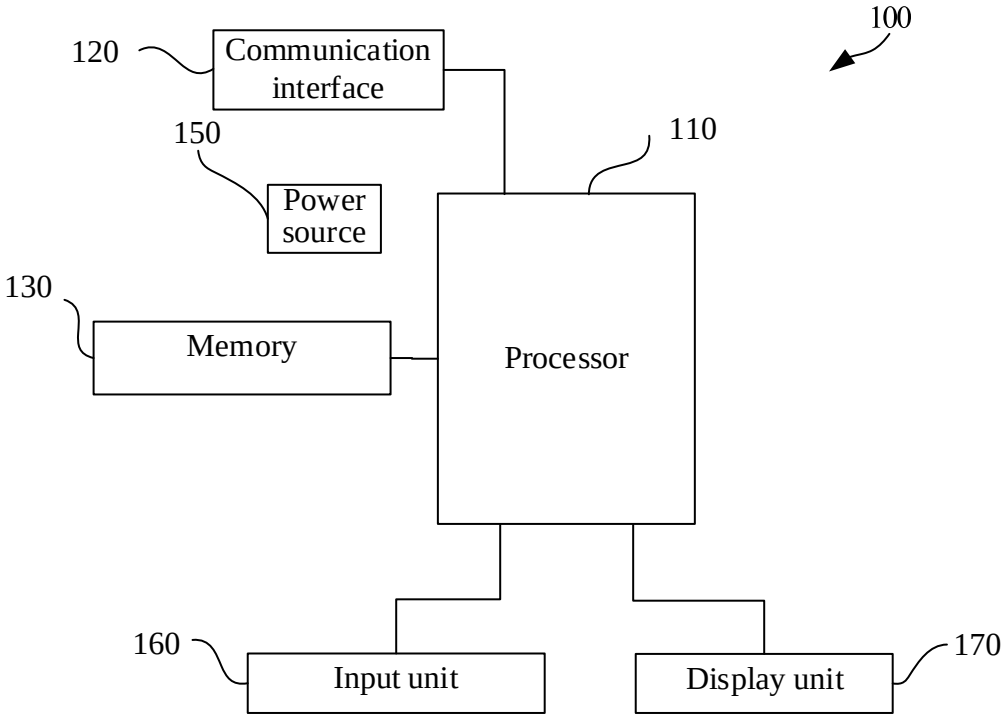
100
120
Communication interface
150
Power source
110
130
Memory
Processor
160
Input unit
Display unit
170

FIG. 1

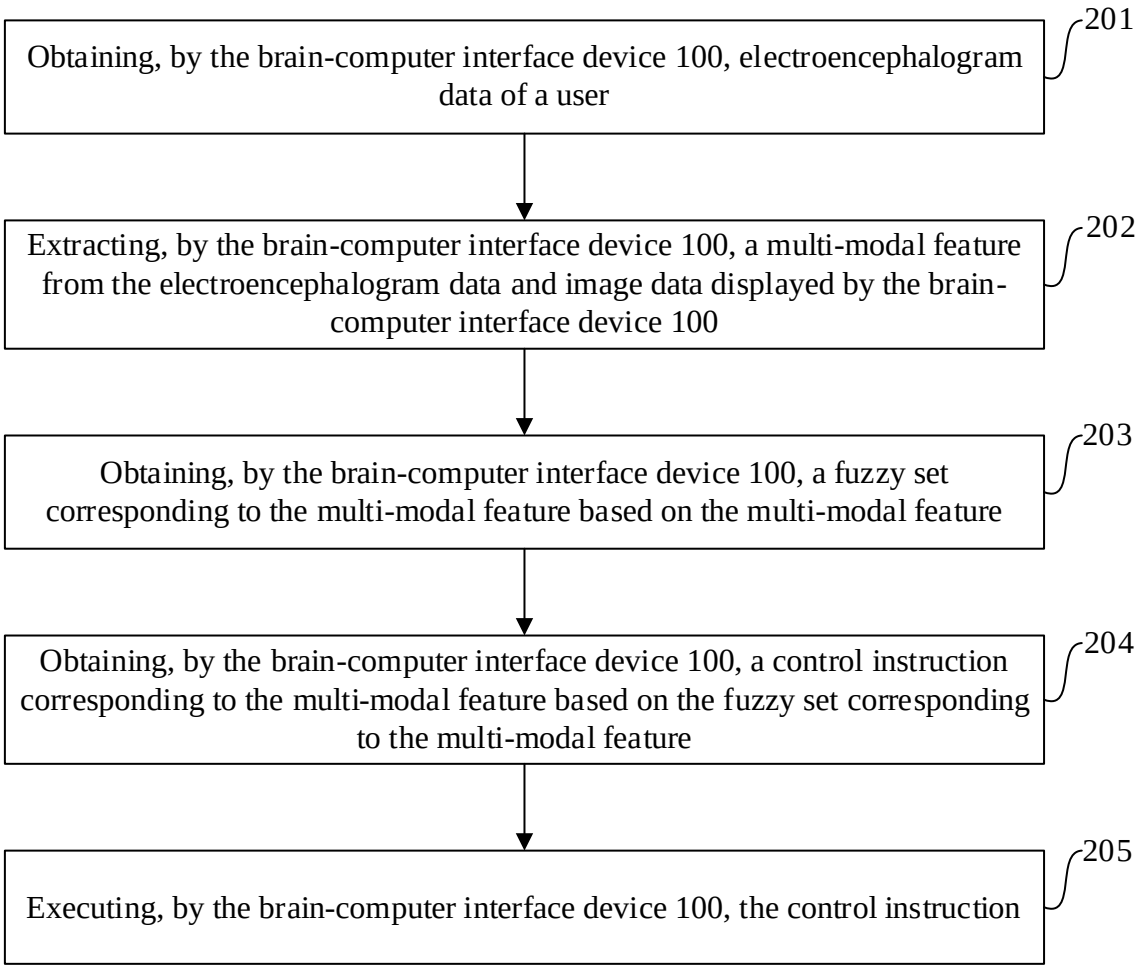
Obtaining, by the brain-computer interface device 100, electroencephalogram data of a user
201
Extracting, by the brain-computer interface device 100, a multi-modal feature from the electroencephalogram data and image data displayed by the brain-computer interface device 100
202
Obtaining, by the brain-computer interface device 100, a fuzzy set corresponding to the multi-modal feature based on the multi-modal feature
203
Obtaining, by the brain-computer interface device 100, a control instruction corresponding to the multi-modal feature based on the fuzzy set corresponding to the multi-modal feature
204
Executing, by the brain-computer interface device 100, the control instruction
205

FIG. 2

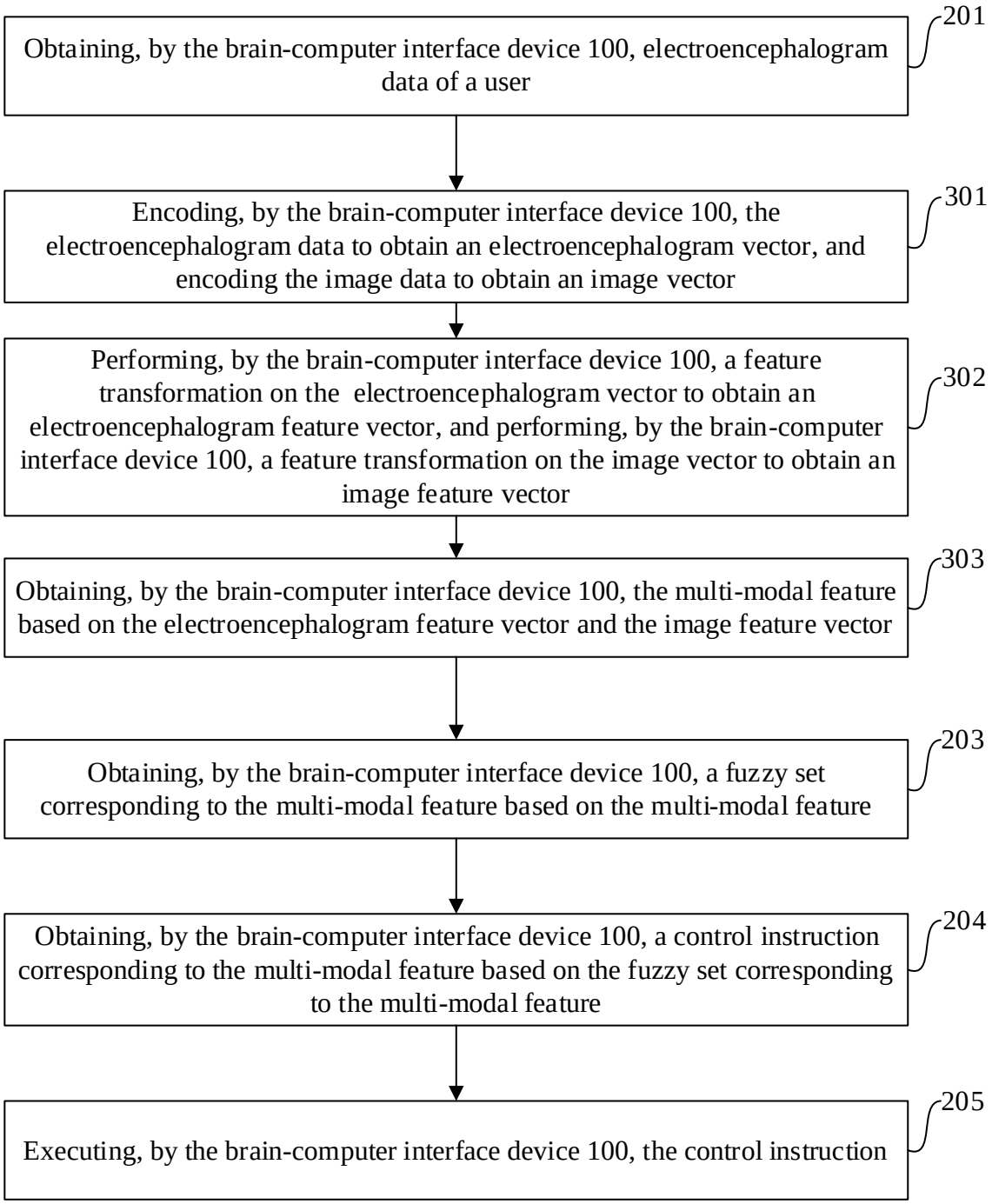
Obtaining, by the brain-computer interface device 100, electroencephalogram data of a user
201
Encoding, by the brain-computer interface device 100, the electroencephalogram data to obtain an electroencephalogram vector, and encoding the image data to obtain an image vector
301
Performing, by the brain-computer interface device 100, a feature transformation on the electroencephalogram vector to obtain an electroencephalogram feature vector, and performing, by the brain-computer interface device 100, a feature transformation on the image vector to obtain an image feature vector
302
Obtaining, by the brain-computer interface device 100, the multi-modal feature based on the electroencephalogram feature vector and the image feature vector
303
Obtaining, by the brain-computer interface device 100, a fuzzy set corresponding to the multi-modal feature based on the multi-modal feature
203
Obtaining, by the brain-computer interface device 100, a control instruction corresponding to the multi-modal feature based on the fuzzy set corresponding to the multi-modal feature
204
Executing, by the brain-computer interface device 100, the control instruction
205

FIG. 3

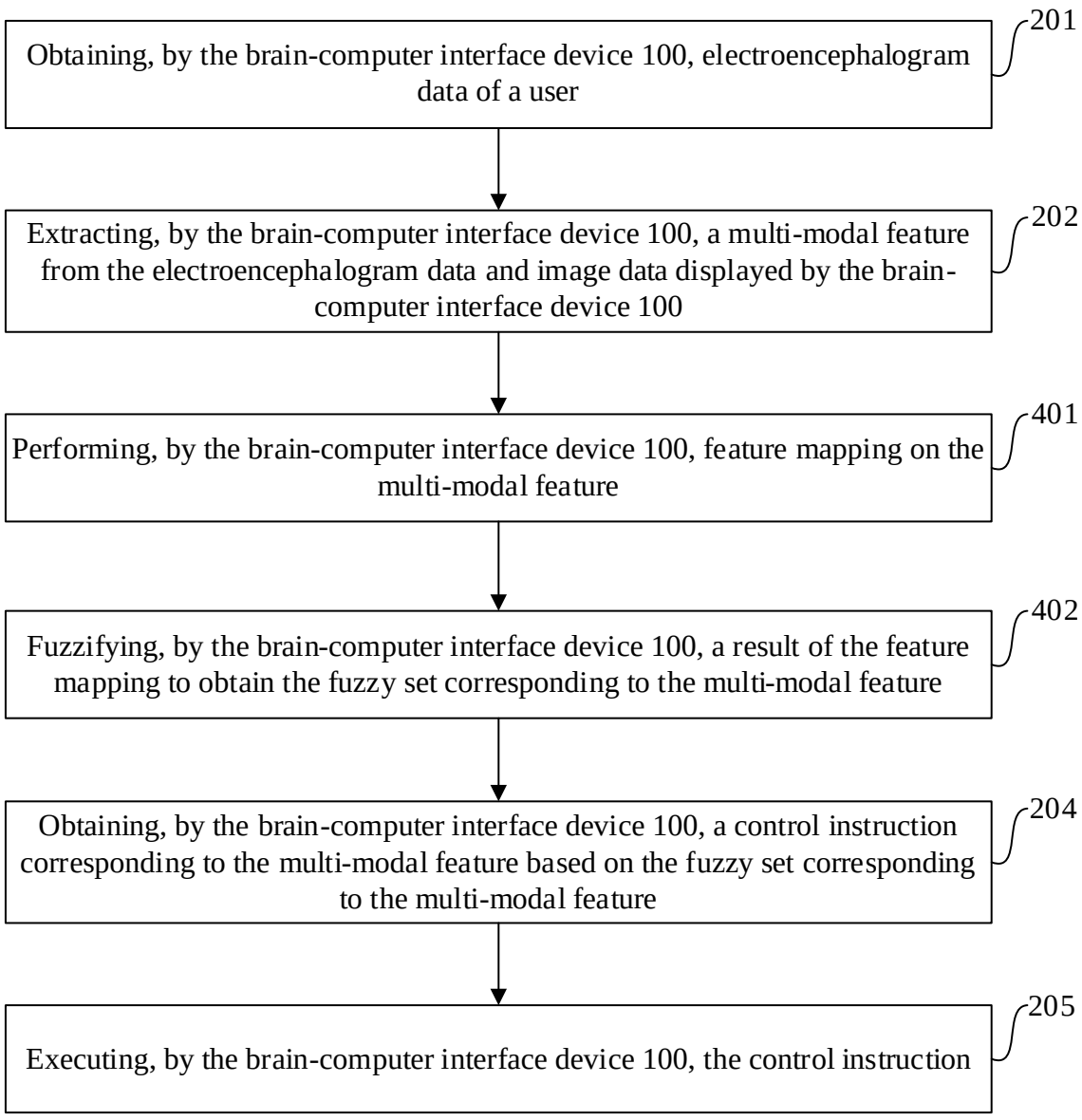
Obtaining, by the brain-computer interface device 100, electroencephalogram data of a user
201
Extracting, by the brain-computer interface device 100, a multi-modal feature from the electroencephalogram data and image data displayed by the brain-computer interface device 100
202
Performing, by the brain-computer interface device 100, feature mapping on the multi-modal feature
401
Fuzzifying, by the brain-computer interface device 100, a result of the feature mapping to obtain the fuzzy set corresponding to the multi-modal feature
402
Obtaining, by the brain-computer interface device 100, a control instruction corresponding to the multi-modal feature based on the fuzzy set corresponding to the multi-modal feature
204
Executing, by the brain-computer interface device 100, the control instruction
205

FIG. 4

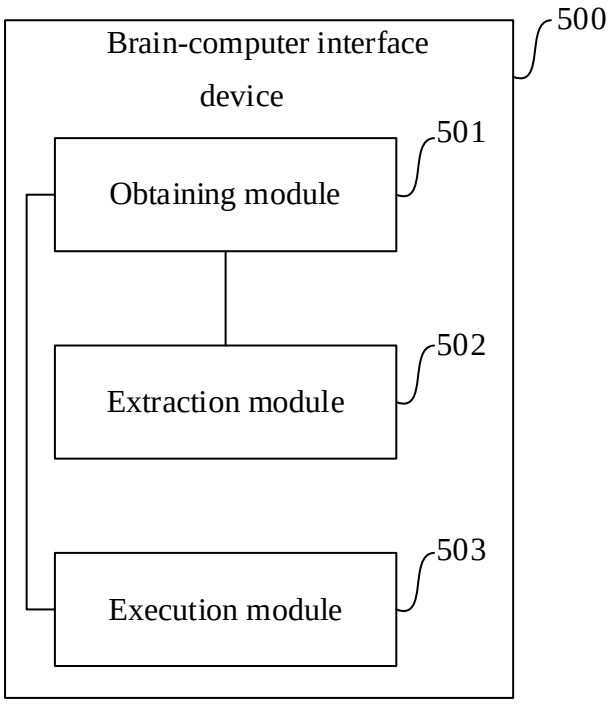
Brain-computer interface device
500
Obtaining module
501
Extraction module
502
Execution module
503

FIG. 5

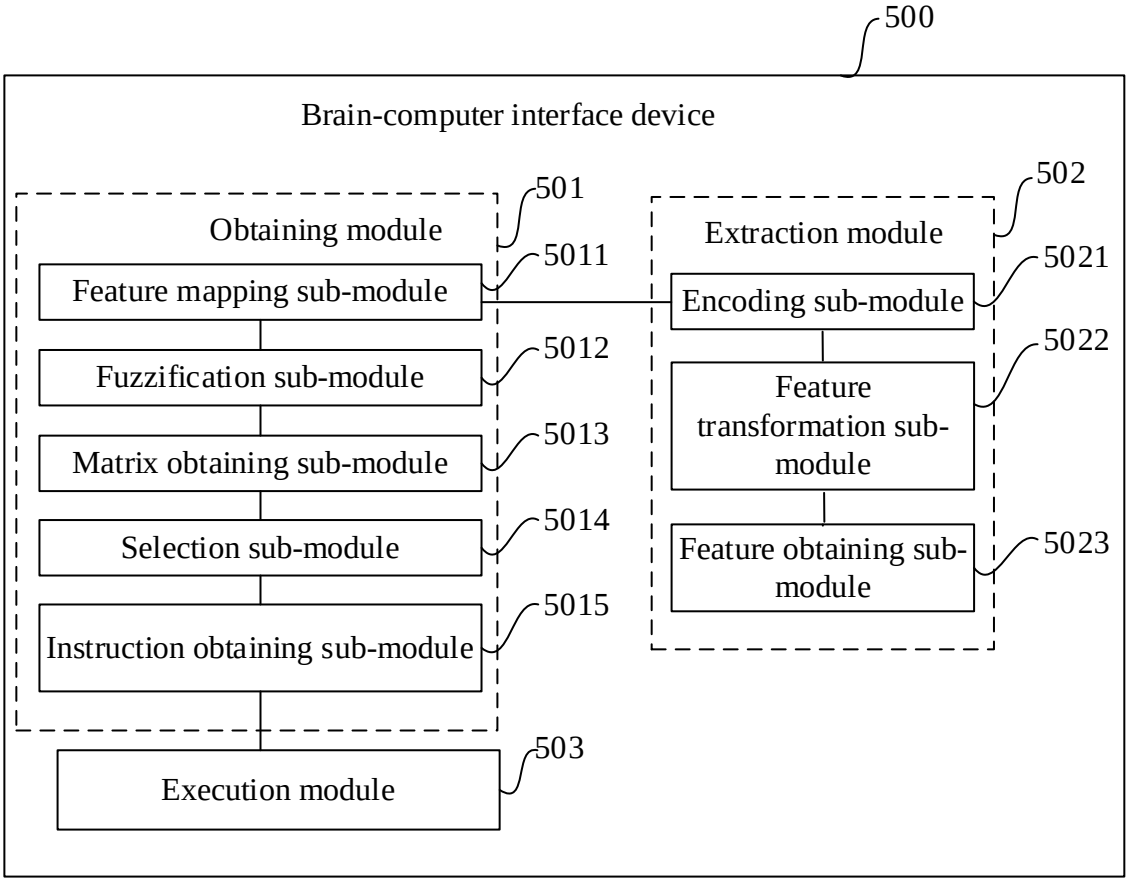
500
Brain-computer interface device
Obtaining module
501
Feature mapping sub-module
5011
Fuzzification sub-module
5012
Matrix obtaining sub-module
5013
Selection sub-module
5014
Instruction obtaining sub-module
5015
Execution module
503
Extraction module
502
Encoding sub-module
5021
Feature transformation sub-module
5022
Feature obtaining sub-module
5023

FIG. 6