CLAIMS

1. A method for localization based on a shared map, comprising:

extracting local map data associated with the key frame from global map data, comprising at least one key frame, of an image collected by a first terminal;

acquiring a present frame in an image collected by a second terminal; and

performing feature matching on the present frame and the local map data, and obtaining a localization result for the present frame according to a matching result.

2. The method of claim 1, wherein before acquiring the present frame in the image collected by the second terminal, the method further comprises: determining whether a number of feature points extracted from the present frame is smaller than an expected threshold for the feature matching, and triggering, in a case where the number of feature points extracted from the present frame is smaller than the expected threshold, processing of supplementing feature points to the present frame.

3. The method of claim 2, wherein the present frame collected by the second terminal comprises a present frame obtained by performing the processing of supplementing the feature points to the present frame.

4. The method of claim 2 or 3, wherein performing the processing of supplementing the feature points to the present frame comprises:

acquiring a first screening threshold for performing feature point extraction on the present frame; and

adaptively adjusting the first screening threshold according to reference information to obtain a second screening threshold, and supplementing feature points to the present frame

according to the second screening threshold, such that the number of feature points is greater than a number of feature points acquired by actual collection.

5. The method of claim 4, wherein the reference information comprises at least one of: information in environmental information for image collection, parameter information in an image collection device, or image information of the present frame itself.

6. The method of any one of claims 1 to 5, wherein performing the feature matching on the present frame and the local map data, and obtaining the localization result for the present frame according to the matching result comprises:

performing Two-Dimensional (2D) feature matching of feature points on the present frame and feature points on at least one key frame in the local map data to obtain a 2D feature matching result;

screening a 2D feature matching result comprising Three-Dimensional (3D) information from the 2D feature matching result, and extracting the 3D information; and

obtaining a pose of the present frame according to the 3D information, the pose of the present frame serving as the localization result.

7. A method for localization based on a shared map, comprising:

collecting, by a first terminal, an image to obtain global map data comprising at least one key frame;

extracting, by the first terminal, local map data associated with the key frame from the global map data; and

receiving, by the first terminal, a present frame collected by a second terminal, performing feature matching on the present frame and the local map data, obtaining a localization result for the present frame according to a matching result, and sending the

localization result.

8. The method of claim 7, wherein extracting, by the first terminal, the local map data associated with the key frame from the global map data comprises:

taking, with the key frame as a reference center, map data, which is obtained according to the key frame and a preset extraction range, as the local map data.

9. The method of claim 7 or 8, wherein performing the feature matching on the present frame and the local map data, and obtaining the localization result for the present frame according to the matching result comprises:

performing Two-Dimensional (2D) feature matching of feature points on the present frame and feature points on at least one key frame in the local map data to obtain a 2D feature matching result;

screening a 2D feature matching result comprising Three-Dimensional (3D) information from the 2D feature matching result, and extracting the 3D information; and

obtaining a pose of the present frame according to the 3D information, and taking the pose of the present frame as the localization result.

10. A method for localization based on a shared map, comprising:

receiving, by a second terminal, global map data comprising at least one key frame, and extracting local map data associated with the key frame from the global map data;

collecting, by the second terminal, an image to obtain a present frame in the collected image; and

performing, by the second terminal, feature matching on the present frame and the local map data, and obtaining a localization result for the present frame according to a matching result.

11. The method of claim 10, wherein before collecting, by the second terminal, the image to obtain the present frame in the collected image, the method further comprises: determining whether a number of feature points extracted from the present frame is smaller than an expected threshold for the feature matching, and triggering, in a case where the number of feature points extracted from the present frame is smaller than the expected threshold, processing of supplementing feature points to the present frame, wherein the present frame comprises a present frame obtained by performing the processing of supplementing the feature points to the present frame.

12. The method of claim 11, wherein performing the processing of supplementing the feature points to the present frame comprises:

acquiring a first screening threshold for performing feature point extraction on the present frame; and

adaptively adjusting the first screening threshold according to reference information to obtain a second screening threshold, and supplementing feature points to the present frame according to the second screening threshold, such that the number of feature points is greater than a number of feature points acquired by actual collection,

wherein the reference information comprises at least one of: information in environmental information for image collection, parameter information in an image collection device, or image information of the present frame itself.

13. The method of any one of claims 10 to 12, wherein performing the feature matching on the present frame and the local map data, and obtaining the localization result for the present frame according to the matching result comprises:

performing Two-Dimensional (2D) feature matching of feature points on the present frame and feature points on at least one key frame in the local map data to obtain a 2D feature matching result;

screening a 2D feature matching result comprising Three-Dimensional (3D) information from the 2D feature matching result, and extracting the 3D information; and

obtaining a pose of the present frame according to the 3D information, taking the pose of the present frame as the localization result.

14. An apparatus for localization based on a shared map, comprising:

a first extraction unit, configured to extract, from global map data, comprising at least one key frame, of an image collected by a first terminal, local map data associated with the key frame;

a first acquisition unit, configured to acquire a present frame in an image collected by a second terminal; and

a first matching unit, configured to perform feature matching on the present frame and the local map data, and obtain a localization result for the present frame according to a matching result.

15. The apparatus of claim 14, further comprising: a trigger unit, configured to:

determine whether the number of feature points extracted from the present frame is smaller than an expected threshold for the feature matching, and trigger, in a case where the number of feature points extracted from the present frame is smaller than the expected threshold, processing of supplementing feature points to the present frame.

16. The apparatus of claim 14 or 15, further comprising: a feature point supplementation unit, configured to:

acquire a first screening threshold for performing feature point extraction on the present frame; and

adaptively adjust the first screening threshold according to reference information to

obtain a second screening threshold, and supplement feature points to the present frame according to the second screening threshold, such that the number of feature points is greater than a number of feature points acquired by actual collection.

17. An apparatus for localization based on a shared map, comprising:

a first collection unit, configured to collect an image to obtain global map data comprising at least one key frame;

a first extraction unit, configured to extract local map data associated with the key frame from the global map data; and

a first matching unit, configured to receive a present frame collected by a second terminal, perform feature matching on the present frame and the local map data, obtain a localization result for the present frame according to a matching result, and send the localization result.

18. The apparatus of claim 17, wherein the first matching unit is further configured to:

perform Two-Dimensional (2D) feature matching of feature points on the present frame and feature points on at least one key frame in the local map data to obtain a 2D feature matching result;

screen a 2D feature matching result comprising Three-Dimensional (3D) information from the 2D feature matching result, and extract the 3D information; and

obtain a pose of the present frame according to the 3D information, take the pose of the present frame as the localization result.

19. An electronic device, comprising:

a processor; and

a memory, configured to store an instruction executable for the processor,

wherein the processor is configured to execute the method of any one of claims 1 to 6, claims 7 to 9, and claims 10 to 13.

20. A computer-readable storage medium having stored thereon computer program instructions that when executed by a processor, implement the method of any one of claims 1 to 6, claims 7 to 9, and claims 10 to 13.