CLAIMS

What is claimed is:

1. A system for predicting a destination location, comprising:

one or more processors; and

a memory having instructions stored therein, the instructions, when executed by the one or more processors, causing the one or more processors to use at least one recurrent neural network to:

process spatial data comprising a first set of information about origin locations and destination locations;

process temporal data comprising a second set of information about times at the origin locations and the destination locations;

determine hidden state data based on the spatial data and the temporal data, wherein the hidden state data comprises data on origin-destination relationships;

receive a current input data from a user, wherein the current input data comprises an identity of the user and a current origin location of the user; and

predict the destination location based on the hidden state data and the current input data;

wherein the first set of information comprises local origin location information, local destination location information, global origin location information and global destination location information;

wherein each origin location and each destination location is within a respective geohash and the local origin location information and the local destination location information include information in a local view related to the respective geohash; and

wherein the global origin location information and the global destination location information include information in a global view related to locations outside of the respective geohash.

2. The system of claim 1, wherein the current input data further comprises a previous destination of the user.

3. The system of any of claims 1 to 2, further comprising:

an encoder configured to process the spatial data and the temporal data, and configured to determine the hidden state data.

4. The system of claim 3, further comprising:

a decoder configured to receive the current input data from the user, to receive the hidden state data from the encoder, and to predict the destination location based on the hidden state data and the current input data.

5. The system of claim 4, wherein the decoder is configured to determine personalized preference data of the user based on the hidden state data, the current input data and a first predetermined weight.

6. The system of claim 5, wherein the decoder is configured to predict the destination location based on the personalized preference data and the hidden state data with a second predetermined weight.

7. The system of any of claims 4 to 6, wherein the decoder is configured to determine a probability that the destination location predicted is a correct destination location.

8. A method for predicting a destination location, comprising:

using at least one recurrent neural network to:

process spatial data comprising a first set of information about origin locations and destination locations;

process temporal data comprising a second set of information about times at the origin locations and the destination locations;

determine hidden state data based on the spatial data and the temporal data, wherein the hidden state data comprises data on origin-destination relationships;

receive a current input data from a user, wherein the current input data comprises an identity of the user and a current origin location of the user; and

predict the destination location based on the origin-destination relationships and the current input data;

wherein the first set of information comprises local origin location information, local destination location information, global origin location information and global destination location information;

wherein each origin location and each local destination location is within a respective geohash and the local origin location information and the local destination location information include information in a local view related to the respective geohash; and

wherein the global origin location information and the global destination location information include information in a global view related to locations outside of the respective geohash.

9. The method of claim 8, wherein the current input data further comprises a previous destination of the user.

10. The method of any of claims 8 to 9, further comprising:

using an encoder to:

process the spatial data and the temporal data; and

determine the hidden state data.

11. The method of claim 10, further comprising:

using a decoder to:

receive the current input data from the user;

receive the hidden state data from the encoder; and

predict the destination location based on the hidden state data and the current input data.

12. The method of claim 11, further comprising:

determining personalized preference data of the user based on the hidden state data, the current input data and a first predetermined weight using the decoder.

13. The method of claim 12, further comprising:

predicting the destination location based on the personalized preference data and the hidden state data with a second predetermined weight using the decoder.

14. The method of any of claims 11 to 13, further comprising:

determining a probability that the destination location predicted is a correct destination location using the decoder.

15. A non-transitory computer-readable medium storing computer executable code comprising instructions for predicting a destination location according to any one of claims 1 to 14.

16. A computer executable code comprising instructions for predicting a destination location according to any one of claims 1 to 15.