

SYSTEMS AND METHODS FOR RECOMMENDING AN ESTIMATED TIME OF ARRIVAL

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Chinese Application No. 201610242067.5 filed on April 18, 2016, the contents of which are incorporated herein by reference.

TECHNICAL FIELD

[0002] The present disclosure generally relates to systems and methods for determining an estimated time of arrival (ETA) for a route, and in particular, systems and methods for determining the ETA using a model of ETA.

BACKGROUND

[0003] With the development of Internet technology, on-demand services, such as online taxi hailing services and delivery services, play a significant role in people's daily life. For example, on-demand transportation service for a transportation may heavily be used by a user (e.g., a passenger). Through an online on-demand service platform, the user may request an on-demand service in the form of an on-demand service through an application installed in a user equipment, such as a smartphone terminal.

SUMMARY

[0004] According to some examples of the present disclosure, a system may include at least one non-transitory computer-readable storage medium and at least one processor of an online on-demand service platform from a requestor terminal configured to communicate with the at least one non-transitory computer-readable storage medium. The at least one non-transitory computer-readable storage medium may include a set of instructions for determining an estimated time of arrival (ETA) for an intended route. When

the at least one processor executing the set of instructions, the at least one processor may be directed to perform one or more of the following operations. The at least one processor may obtain a first electrical signal associated with at least one route having at least one road section. The at least one processor may generate and save first structured data of at least one global feature vector and at least one historical duration associated with the at least one route based on the first electrical signal. The at least one processor may generate second structured data of a model of ETA by training the model based on the at least one global feature vector and the at least one historical duration. The at least one processor may save the second structured data of the model of ETA in the at least one non-transitory computer-readable storage medium.

[0005] According to some examples of the present disclosure, a method may include one or more of the following operations. At least one computer server of an online on-demand service platform from a requestor terminal may obtain a first electrical signal associated with at least one route having at least one road section. The at least one computer server may generate and save first structured data of at least one global feature vector and at least one historical duration associated with the at least one route based on the first electrical signal. The at least one computer server may generate second structured data of a model of ETA by training the model based on the at least one global feature vector and the at least one historical duration. The at least one computer server may save the second structured data of the model of ETA in at least one non-transitory computer-readable storage medium.

[0006] According to some examples of the present disclosure, a non-transitory machine-readable storage medium may include instructions. When the non-transitory machine-readable storage medium accessed by at least one processor of an online on-demand service platform from a requestor terminal, the instructions may cause the at least one processor to perform one or more of the following operations. The instructions may cause the at least

one processor to obtain a request of an on-demand service including a current default service location through a wireless network. The instructions may cause the at least one processor to obtain a first electrical signal associated with at least one route having at least one road section. The instructions may cause the at least one processor to generate and save first structured data of at least one global feature vector and at least one historical duration associated with the at least one route based on the first electrical signal. The instructions may cause the at least one processor to generate second structured data of a model of ETA by training the model based on the at least one global feature vector and the at least one historical duration. The instructions may cause the at least one processor to save the second structured data of the model of ETA in the non-transitory computer-readable storage medium.

[0006a] In view of the above, in accordance with an aspect of the present disclosure, there is provided a system configured to operate an online on-demand transportation service. The system comprises at least one storage medium including a set of instructions and at least one processor in communication with the at least one storage medium. When executing the instructions, the at least one processor is directed to: obtain a first electrical signal associated with at least one route having at least one road section; generate and save first structured data of at least one global feature vector and at least one historical duration associated with the at least one route based on the first electrical signal; generate second structured data of a model of estimated time of arrival (ETA) by training the model based on the at least one global feature vector and the at least one historical duration; and save the second structured data of the model of ETA in the at least one storage medium.

[0006b] In accordance with another aspect of the present disclosure, there is provided a method implemented on a computing device having at least one processor, at least one storage medium, and a communication platform

connected to a network. The method comprises: obtaining a first electrical signal associated with at least one route having at least one road section; generating and saving first structured data of at least one global feature vector and at least one historical duration associated with the at least one route based on the first electrical signal; generating second structured data of a model of estimated time of arrival (ETA) by training the model based on the at least one global feature vector and the at least one historical duration; and saving the second structured data of the model of ETA in the at least one storage medium.

[0006c] In accordance with yet another aspect of the present disclosure, there is provided a non-transitory computer-readable storage medium including instructions that, when accessed by at least one processor of an online on-demand service platform from a requestor terminal, causes the at least one processor to: obtain a first electrical signal associated with at least one route having at least one road section; generate and save first structured data of at least one global feature vector and at least one historical duration associated with the at least one route based on the first electrical signal; generate second structured data of a model of estimated time of arrival (ETA) by training the model based on the at least one global feature vector and the at least one historical duration; and save the second structured data of the model of ETA in the non-transitory computer-readable storage medium.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The present disclosure is further described in terms of exemplary embodiments. These exemplary embodiments are described in detail with reference to the drawings. These embodiments are non-limiting exemplary embodiments, in which like reference numerals represent similar structures throughout the several views of the drawings, and wherein:

[0008] FIG. 1 is a block diagram illustrating an exemplary on-demand service system according to some embodiments of the present disclosure

[0009] FIG. 2 is a block diagram illustrating an exemplary processing engine according to some embodiments of the present disclosure;

[0010] FIG. 3 is a flowchart illustrating an exemplary process and/or method for determining an ETA for a transportation service according to some embodiments of the present disclosure;

[0011] FIG. 4 is a flowchart illustrating an exemplary process and/or method for determining an ETA for an intended route according to some embodiments of the present disclosure;

WE CLAIM:

1. A system configured to operate an online on-demand transportation service, comprising:
 - at least one storage medium including a set of instructions;
 - at least one processor in communication with the at least one storage medium,wherein when executing the instructions, the at least one processor is directed to:
 - obtain a first electrical signal associated with at least one route having at least one road section;
 - generate and save first structured data of at least one global feature vector and at least one historical duration associated with the at least one route based on the first electrical signal;
 - generate second structured data of a model of estimated time of arrival (ETA) by training the model based on the at least one global feature vector and the at least one historical duration; and
 - save the second structured data of the model of ETA in the at least one storage medium.
2. The system of claim 1, wherein at least two of the at least one global feature vector are integrated into a determinant.
3. The system of claim 2, wherein the at least one global feature vector includes an overall feature vector, wherein the overall feature vector includes a feature indicating a relationship between at least two of the at least one road section.
4. The system of claim 3, wherein the at least two of the at least one road section are apart from each other.

5. The system of claim 3, wherein the overall feature vector includes at least one of traffic status, the traffic status including a real-time road speed or an estimated road speed.

6. The system of claim 1, wherein the model of ETA includes at least one of a regression model, a decision tree model, an artificial neural network model, a support vector regression model, a restricted Boltzmann Machine model, or a genetic algorithm.

7. The system of claim 1, wherein the model of ETA includes a plurality of sub-models of ETA, the plurality of sub-models of ETA corresponding to at least one of time interval or region in the map.

8. The system of claim 1, wherein the at least one processor is further directed to:

receive a second electrical signal associated with an intended route having at least one road section;

generate and save third structured data of at least one intended global feature vector associated with the intended route based on the second electrical signal; and

execute the second structured data of the model of ETA to determine an ETA corresponding to the intended route, based on the intended feature vector and the model of ETA.

9. The system of claim 8, wherein to determine the ETA corresponding to the intended route, the at least one processor is further directed to:

determine a time interval of a starting time of the intended route; and

select, based on the starting time, the sub-model of ETA corresponding to time interval.

10. The system of claim 8, wherein to determine the ETA corresponding to the intended route, the at least one processor is further directed to:

determine a region of a starting location or an ending location of the intended route; and

select, based on the starting location and the ending location, the sub-model of ETA corresponding to the region in the map.

11. A method implemented on a computing device having at least one processor, at least one storage medium, and a communication platform connected to a network, comprising:

obtaining a first electrical signal associated with at least one route having at least one road section;

generating and saving first structured data of at least one global feature vector and at least one historical duration associated with the at least one route based on the first electrical signal;

generating second structured data of a model of estimated time of arrival (ETA) by training the model based on the at least one global feature vector and the at least one historical duration; and

saving the second structured data of the model of ETA in the at least one storage medium.

12. The method of claim 11, wherein at least two of the at least one global feature vector are integrated into a determinant.

13. The method of claim 12, wherein the at least one global feature vector includes an overall feature vector, wherein the overall feature vector includes a feature indicating a relationship between at least two of the at least one road section.

14. The method of claim 13, wherein the at least two of the at least one road section are apart from each other.

15. The method of claim 13, wherein the overall feature vector includes at least one of traffic status, the traffic status including a real-time road speed or an estimated road speed.

16. The method of claim 11, wherein the model of ETA includes at least one of a regression model, a decision tree model, an artificial neural network model, a support vector regression model, a restricted Boltzmann Machine model, or a genetic algorithm.

17. The method of claim 11, wherein the model of ETA includes a plurality of sub-models of ETA, the plurality of sub-models of ETA corresponding to at least one of time interval or region in the map.

18. The method of claim 11, further comprising:

receiving a second electrical signal associated with an intended route having at least one road section;

generating and saving third structured data of at least one intended global feature vector associated with the intended route based on the second electrical signal; and

executing the second structured data of the model of ETA to determine an ETA corresponding to the intended route, based on the intended feature vector and the model of ETA.

19. The method of claim 18, wherein determining the ETA corresponding to the intended route, further comprising:

determining a time interval of a starting time of the intended route; and

selecting, based on the starting time, the sub-model of ETA corresponding to time interval.

20. A non-transitory computer-readable storage medium including instructions that, when accessed by at least one processor of an online on-demand service platform from a requestor terminal, causes the at least one processor to:

- obtain a first electrical signal associated with at least one route having at least one road section;

- generate and save first structured data of at least one global feature vector and at least one historical duration associated with the at least one route based on the first electrical signal;

- generate second structured data of a model of estimated time of arrival (ETA) by training the model based on the at least one global feature vector and the at least one historical duration; and

- save the second structured data of the model of ETA in the non-transitory computer-readable storage medium.