Claims

[Claim 1]

An information processing apparatus comprising:

a data generation section that generates estimated data for second measurement data measured by a second device based on first measurement data measured by a first device that measures information about a mobility, the second device being different from the first device and measuring information about the mobility; and

a model generation section that generates a model for calculating quantities related to the mobility using the second device based on the estimated data,

wherein the estimated data for the second measurement data is mathematically subsumed by the first measurement data, and

wherein the data generation section generates at least a portion of the estimated data based on the following formulae:

D2(1) = D1(1),

D2(k) = D1g(D2(k-1)),

where:

k is a natural number greater than or equal to 2,

D1 represents data among the first measurement data at an argument value indicating an order value from a reference point when the first measurement data is arranged in a chronological order,

D2 represents data among the estimated data at an argument value indicating an order value from the reference point when the estimated data is arranged in a chronological order, and D1g outputs data from the first measurement data that satisfies at least one of a time-related condition, a distance-related condition, and an azimuth-related condition corresponding to the argument value.

[Claim 2]

An information processing apparatus comprising:

a function generation section that generates a function that approximates first measurement data measured by a first device that measures information about a mobility;

a data generation section that generates estimated data for second measurement data measured by a second device based on the generated function and arguments based on a predetermined condition, the second device being different from the first device and measuring information about the mobility; and

a model generation section that generates a model for calculating quantities related to the mobility using the second device based on the estimated data,

wherein the predetermined condition is at least one of a time-related condition, a distance-related condition, and an azimuth-related condition.

[Claim 3]

The information processing apparatus of claim 1 or claim 2, wherein the model generation section generates the model by machine learning using at least the estimated data as training data.

[Claim 4]

The information processing apparatus of claim 3, wherein the model generation section generates the model by machine learning using at least the estimated data and the second measurement data as training data.

[Claim 5]

The information processing apparatus of claim 1 or claim 2, further comprising a calculation section that calculates the quantities based on the second measurement data and the generated model.

[Claim 6]

The information processing apparatus of claim 1 or claim 2, wherein

the first device and the second device measure travel information,

the quantities are driving score related to an operation of the mobility for which the travel information is measured, and

the model is a model for calculating the driving score based on the second measurement data.

[Claim 7]

The information processing apparatus of claim 6, wherein the model generation section generates a model for calculating the driving score by machine learning using the estimated data and information based on the first measurement data as training data.

[Claim 8]

The information processing apparatus of claim 1 or claim 2, wherein

the second measurement data is transmitted from the second device to a roadside unit at a predetermined location,

the information processing apparatus further comprises a determination section that determines whether or not to generate the estimated data based on the first measurement data and location information of the roadside unit.

[Claim 9]

The information processing apparatus of claim 1 or claim 2, wherein

the second measurement data is transmitted from the second device to a roadside unit at a predetermined location,

the information processing apparatus further comprises a determination section that determines whether or not to use the estimated data that are generated based on the first measurement data and location information of the roadside unit.

[Claim 10]

The information processing apparatus of claim 1 or claim 2, wherein

the second measurement data is transmitted from the second device to a roadside unit at a predetermined location,

the information processing apparatus further comprises a determination section that determines a measurement period of the first measurement data to be used for generating the estimated data based on the first measurement data and location information of the roadside unit.

[Claim 11]

An information processing method including:

generating estimated data for second measurement data measured by a second device based on first measurement data measured by a first device that measures information about a mobility, the second device being different from the first device and measuring information about the mobility,

generating a model for calculating quantities related to the mobility using the second device based on the estimated data,

wherein

the estimated data for the second measurement data is mathematically subsumed by the first measurement data, and

wherein at least a portion of the estimated data is generated based on the following formulae:

D2(1) = D1(1),

D2(k) = D1g(D2(k-1)),

where:

k is a natural number greater than or equal to 2,

D1 represents data among the first measurement data at an argument value indicating an order value from a reference point when the first measurement data is arranged in a chronological order,

D2 represents data among the estimated data at an argument value indicating an order value from the reference point when the estimated data is arranged in a chronological order, and D1g outputs data from the first measurement data that satisfies at least one of a time-related condition, a distance-related condition, and an azimuth-related condition corresponding to the argument value.

[Claim 12]

A program for causing a computer to execute:

generating estimated data for second measurement data measured by a second device based on first measurement data measured by a first device that measures information about a mobility, the second device being different from the first device and measuring information about the mobility,

generating a model for calculating quantities related to the mobility using the second device based on the estimated data,

wherein

the estimated data for the second measurement data is mathematically subsumed by the first measurement data, and

wherein at least a portion of the estimated data is generated based on the following formulae:

D2(1) = D1(1),

D2(k) = D1g(D2(k-1)),

where:

k is a natural number greater than or equal to 2,

D1 represents data among the first measurement data at an argument value indicating an order value from a reference point when the first measurement data is arranged in a chronological order,

D2 represents data among the estimated data at an argument value indicating an order value from the reference point when the estimated data is arranged in a chronological order, and D1g outputs data from the first measurement data that satisfies at least one of a time-related condition, a distance-related condition, and an azimuth-related condition corresponding to the argument value.

[Claim 13]

A trained model for enabling a computer to output quantities related to a mobility using a second device, based on information regarding the mobility obtained by the second device, wherein:

the model is trained based on estimated data of second measurement data measured by the second device, the estimated data being generated based on first measurement data measured by a first device different from the second device, and

the estimated data for the second measurement data is mathematically subsumed by the first measurement data,

wherein at least a portion of the estimated data is generated based on the following formulae:

D2(1) = D1(1),

D2(k) = D1g(D2(k-1)),

where:

k is a natural number greater than or equal to 2,

D1 represents data among the first measurement data at an argument value indicating an order value from a reference point when the first measurement data is arranged in a chronological order,

D2 represents data among the estimated data at an argument value indicating an order value from the reference point when the estimated data is arranged in a chronological order, and D1g outputs data from the first measurement data that satisfies at least one of a time-related condition, a distance-related condition, and an azimuth-related condition corresponding to the argument value.

[Claim 14]

An information processing method including:

generating a function that approximates first measurement data measured by a first device that measures information about a mobility;

generating estimated data for second measurement data measured by a second device based on the generated function and arguments based on a predetermined condition, the second device being different from the first device and measuring information about the mobility; and

generating a model for calculating quantities related to the mobility using the second device based on the estimated data,

wherein the predetermined condition is at least one of a time-related condition, a distance-related condition, and an azimuth-related condition.

[Claim 15]

A program for causing a computer to execute:

generating a function that approximates first measurement data measured by a first device that measures information about a mobility;

generating estimated data for second measurement data measured by a second device based on the generated function and arguments based on a predetermined condition, the second device being different from the first device and measuring information about the mobility; and

generating a model for calculating quantities related to the mobility using the second device based on the estimated data,

wherein the predetermined condition is at least one of a time-related condition, a distance-related condition, and an azimuth-related condition.

[Claim 16]

A trained model for enabling a computer to output quantities related to a mobility using a second device, based on information regarding the mobility obtained by the second device, wherein:

the model is trained based on estimated data for second measurement data measured by the second device based on a function and arguments based on a predetermined condition, the second device is different from a first device and measuring information about the mobility,

the function approximates first measurement data measured by the first device that measures information about the mobility,

wherein the predetermined condition is at least one of a time-related condition, a distance-related condition, and an azimuth-related condition.