CLAIMS

1. A trajectory estimation system for a vehicle, the system comprising,

a map feature module comprising one or more map features, each map feature being an instance of a deviation from a substantially straight path on a map;

a vehicle movement data module comprising one or more travel features, each travel feature being an instance of a deviation from a substantially straight path, the one or more travel features being obtained from movement data of the vehicle, wherein the movement data comprises data measured by a microelectromechanical sensors (MEMS) based accelerometer and gyroscope device;

a processing module configured to match each travel feature with the one or more map features and to generate one or more trajectory candidates based on the one or more travel features; and

wherein the processing module is further configured to identify a final trajectory candidate from the generated one or more trajectory candidates.

2. The system of claim 1, wherein the generation of the one or more trajectory candidates is based on a known sequence of the one or more travel features.

3. The system of claim 1 or 2, wherein the generation of the one or more trajectory candidates comprises the processing module being configured to sample each of the generated one or more trajectory candidates and to sample the movement data; and further being configured to evaluate the sampled one or more trajectory candidates and the sampled movement data.

4. The system of any one of claims 1 to 3, further comprising a map feature extraction module configured to extract the one or more map features from the map to form a map feature list.

5. The system of claim 4, wherein the map feature extraction module is further configured to extract new map features from an updated map to update the map feature list.

~~6. The system of any one of claims 1 to 5, wherein the movement data comprises data measured by a microelectromechanical sensors (MEMS) based accelerometer and gyroscope device.~~

~~7~~6. The system of any one of claims 1 to ~~6~~5, wherein the movement data comprises speed and angular data.

~~8~~7. The system of any one of claims 1 to ~~7~~6, wherein the vehicle movement data module is configured to extract the one or more travel features from the movement data.

~~9~~8. The system of any one of claims 1 to ~~8~~7, wherein the processing module is further configured to calculate a degree of confidence for each of the one or more trajectory candidates.

~~10~~9. A method for estimating a trajectory of a vehicle, the method comprising,

providing one or more map features, each map feature being an instance of a deviation from a substantially straight path on a map;

obtaining movement data of the vehicle from data measured by a microelectromechanical sensors (MEMS) based accelerometer and gyroscope device;

providing one or more travel features, each travel feature being an instance of a deviation from a substantially straight path, the one or more travel features being obtained from the movement data of the vehicle;

matching each travel feature with the one or more map features;

generating one or more trajectory candidates based on the one or more travel features; and

identifying a final trajectory candidate from the generated one or more trajectory candidates.

~~11~~10. The method of claim ~~10~~9, wherein the step of generating one or more trajectory candidates comprises using a known sequence of the one or more travel features.

~~12~~11. The method of claim ~~10 9~~ or ~~11~~10, wherein the step of generating one or more trajectory candidates comprises sampling each of the generated one or more trajectory candidates and sampling the movement data; and evaluating the sampled one or more trajectory candidates and the sampled movement data.

~~13~~12. The method of any one of claims ~~10 9~~ to ~~12~~11, further comprising a step of extracting the one or more map features from the map to form a map feature list.

~~14~~13. The method of claim ~~13~~12, further comprising a step of extracting new map features from an updated map to update the map feature list.

~~15. The method of any one of claims 10 to 14, further comprising obtaining the movement data from data measured by a microelectromechanical sensors (MEMS) based accelerometer and gyroscope device.~~

~~16~~14. The method of any one of claims ~~10~~ 9 to ~~15~~13, further comprising processing the movement data to obtain speed and angular data.

~~17~~15. The method of any one of claims ~~10~~ 9 to ~~16~~14, further comprising extracting the one or more travel features from the movement data.

~~18~~16. The method of any one of claims ~~10~~ 9 to ~~17~~15, further comprising calculating a degree of confidence for each of the one or more trajectory candidates.

~~19~~17. A non-transitory computer readable storage medium having stored thereon instructions for instructing a processing unit of a system to execute a method for estimating a trajectory of a vehicle, the method comprising,

providing one or more map features, each map feature being an instance of a deviation from a substantially straight path on a map;

obtaining movement data of the vehicle from data measured by a microelectromechanical sensors (MEMS) based accelerometer and gyroscope device;

providing one or more travel features, each travel feature being an instance of a deviation from a substantially straight path, the one or more travel features being obtained from the movement data of the vehicle;

matching each travel feature with the one or more map features;

generating one or more trajectory candidates based on the one or more travel features; and

identifying a final trajectory candidate from the generated one or more trajectory candidates.