

工程与应用

基于模糊模式识别的车辆定位地图匹配算法

孙棣华, 王春丽

重庆大学 自动化学院, 重庆 400044

收稿日期 修回日期 网络版发布日期 2007-8-20 接受日期

摘要 针对传感器给出的车辆定位信息的不确定性, 提出了基于模糊模式识别技术获得匹配道路的算法。给出的算法不需要车辆行驶的速度、方向参数, 利用车辆定位轨迹与电子地图道路网之间的相似性, 结合车辆实际行驶情况, 得出定位点到候选道路之间的距离、相邻采样时刻定位点连线与候选道路之间的夹角、候选道路与历史匹配道路连通性的隶属函数, 按照最大隶属原则选择匹配道路。通过实验验证, 表明该算法具有可靠性, 适用面广, 能有效地提高车辆定位的精度。

关键词 [车辆定位](#) [地图匹配](#) [模糊模式识别](#) [隶属函数](#)

分类号

Map matching algorithm based on fuzzy pattern recognition for vehicle location

SUN Di-hua, WANG Chun-li

College of Automation, Chongqing University, Chongqing 400044, China

Abstract

Considering the uncertainty of the vehicle location information from the sensor, a kind of algorithm based on fuzzy pattern recognition techniques is proposed to select the matching road. This algorithm doesn't need the running vehicles' speed and direction parameters. While using the similarity between the vehicle location track and the road network in electronic map and combining the actual travel situation of the vehicle, the algorithm gets the membership functions of the distances between the locating point and the candidate roads, the included angles between the lines linking the neighbouring locating points selected at different times and the candidate roads, the connectivity between all the candidate roads and the historical matching roads. It chooses the matching road according to the maximal membership principle. The experiment results show that the algorithm is of reliability, can be used broadly and effectively improve the precision of the vehicle location.

Key words [vehicle location](#) [map matching](#) [fuzzy pattern recognition](#) [membership function](#)

DOI:

通讯作者 孙棣华 [E-mail: d3sun@163.com](mailto:d3sun@163.com)

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(1502KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ 本刊中 [包含“车辆定位”的相关文章](#)

▶ 本文作者相关文章

· [孙棣华](#)

· [王春丽](#)