算法研究

改进型PSO鲁棒定位算法

竹博，胡捍英

解放军信息工程大学

摘要：

针对传统的定位算法在复杂环境下定位精度不高，对环境噪声鲁棒性差的问题，提出了一种基于改进型粒子群算法的鲁棒定位算法。考虑到标准粒子群算法中存在收敛速度慢和"早熟收敛"的问题，本文兼顾粒子群的多样性和收敛速度对粒子种群进行优化。首先采用分组定位方法来优化粒子群，然后利用标准的粒子群算法进行迭代定位。仿真结果表明，和传统算法相比，该算法收敛速度快，对初始种群数目要求少，且当观测值中存在NLOS误差时，定位精度高，鲁棒性强。

关键词： 定位；粒子群算法；鲁棒；NLOS误差

Improved PSO- Based Robust Location Algorithm

ZHU Bo, HU Han-Ying

PLA Information Engineering University, Zhengzhou

Abstract:

In view of the poor positioning accuracy and lack of robustness to environmental noise of the traditional algorithm, an improved particle swarm optimization-based location algorithm is proposed. Considering the problem of slow rate of convergence and premature convergence in traditional PSO algorithm, the particle population is optimized by giving consideration to the diversity of particle and the rate of convergence. First the particle population is optimized through grouping location, and then standard PSO is adopted iteratively to locate the mobile station. Simulation results show that the proposed algorithm, compared with the traditional algorithm, not only converges faster and requires less number of particles, but also has a high accuracy and improves robustness to noise when NLOS error occurs.

Keywords: Location　Particle Swarm Optimization　Robustness　NLOS error

通讯作者：

作者简介：

作者Email: zhuboapple@163.com

参考文献：

本刊中的类似文章

文章评论

反馈人		邮箱地址	
反			

| 馈
标
题 | | 验证码 | 7279 |