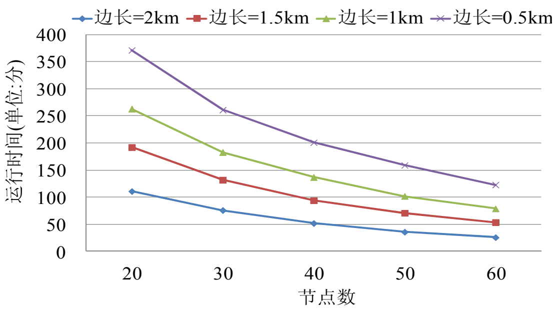

Fig.6 Running time of GPMA
图 6 不同网格粒度下的时间性能

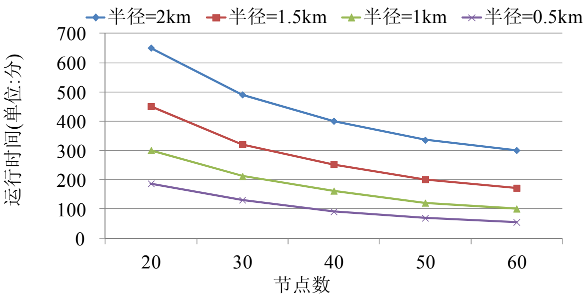

Fig.7 Running time of SPMA
图 7 不同半径下的时间性能

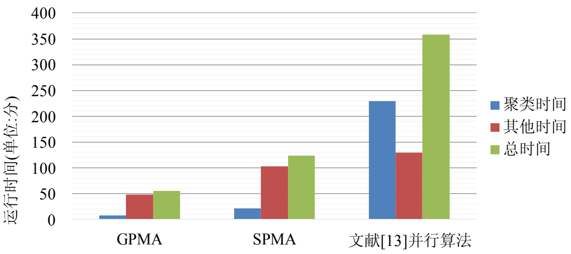

Fig.8 Comparison of running time
图 8 算法运行时间对比图

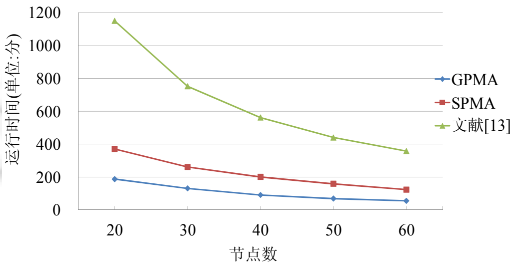

Fig.9 Scalability of proposed algorithms
图 9 算法扩展性

6 结束语

本文介绍了从海量低质的手机轨迹数据中挖掘用户重要位置的通用框架,以及基于该框架的两种算法:GPMA 和 SPMA,进一步从 3 个方面修正所挖掘出的重要位置.本文所介绍的两种算法均是先从用户的活动记录中找出可能包含重要位置的区域,再对区域进行聚类,最后从聚类结果中分析出用户的重要位置.两者的区别是,GPMA 使用网格区域来表示可能包含重要位置的区域,而 SPMA 使用基站覆盖范围来表示.相比已有工作,本文围绕重要位置挖掘这一核心点,考虑了如何提高低质轨迹数据的可用性.同时,还融合其他数据以提高结果的精度,并针对两类特殊人群,设计了退休等无工作地人群的发现算法和夜间工作人群挖掘算法,以提高结果的合理性.实验结果表明,本文算法相比已有算法,其结果的 F_1 值更高,位置结果更精确.同时,本文所提两种算法中 GPMA 的时间性能更好,SPMA 的准确度和精确度更高.

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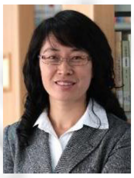

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