

Feature Tendency Based Location Prediction in LBSNs

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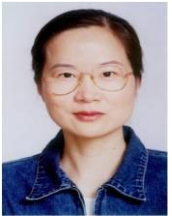
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Abstract— The development of location-based social networks (LBSNs) has brought in massive users' mobility data, providing an unprecedented opportunity to study human mobile behavior. However, the existing location prediction methods suffer from incompleteness of mobility data and disability of selecting the effective feature. To better understand and describe mobile behavior, users' multi-features are induced and reorganized comprehensively in this paper. Meanwhile, we propose a novel location prediction model, Powerful Feature Tendency Based Selection (PFTS), which is universal for all datasets with diverse features. Furthermore, the proposed model can self-adaptively select the feature with the most powerful tendency by comparing variance of visiting probability distribution. Based on the chosen features, our model automatically employs corresponding method to predict locations for various scenes. Using two real-world LBSNs datasets, the experiment results validate that the PFTS significantly outperforms state-of-the-art approaches in terms of prediction accuracy. The results also suggest that the feature tendency is efficient to capture users' mobile behavior for boosting prediction performances.

Keyword—Location-based social networks, Location prediction, Mobile behavior, Self-adaptively select, Feature tendency



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