

# Efficient Point-based Trajectory Search [1]

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## Abstract

Trajectory data capture the traveling history of moving objects such as people or vehicles. With the proliferation of GPS and tracking technology, huge volumes of trajectories are rapidly generated and collected. Under this, applications such as route recommendation and traveling behavior mining call for efficient trajectory retrieval. In this paper, we first focus on distance-based trajectory search; given a collection of trajectories and a set query points, the goal is to retrieve the top- $k$  trajectories that pass as close as possible to all query points. We advance the state-of-the-art by combining existing approaches to a hybrid method and also proposing an alternative, more efficient range-based approach. Second, we propose and study the practical variant of bounded distance-based search, which takes into account the temporal characteristics of the searched trajectories. Through an extensive experimental analysis with real trajectory data, we show that our range-based approach outperforms previous methods by at least one order of magnitude.

## References

- [1] S. Qi, P. Bouros, D. Sacharidis, and N. Mamoulis. Efficient point-based trajectory search. In *SSTD*, pages 179–196, 2015.