

Finding Local Experts for Dynamic Recommendations Using Lazy Random Walk

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Abstract—Statistics based privacy-aware recommender systems make suggestions more powerful by extracting knowledge from the log of social contacts interactions, but unfortunately, they are static — moreover, advice from local experts effective in finding specific business categories in a particular area. We propose a dynamic recommender algorithm based on a lazy random walk that recommends top-rank shopping places to potentially interested visitors. We consider local authority and topical authority. The algorithm tested on FourSquare shopping data sets of 5 cities in Indonesia with k -steps={5,7,9} (lazy) random walks and compared the results with other state-of-the-art ranking techniques. The results show that it can reach high score precisions (0.5, 0.37, and 0.26 respectively on $p@1$, $p@3$, and $p@5$ for $k=5$). The algorithm also shows scalability concerning execution time. The advantage of dynamicity is the database used to power the recommender system; no need to be very frequently updated to produce a good recommendation.

Keywords—recommender systems, local expert, lazy random walk, PageRank

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