











model. In addition to this, RWCFR produces more accurate results than all the baselines with the power of random walk. RWCFR has the highest performance for each of the datasets. These results clearly indicate that RWCFR is a stable friend recommendation algorithm for LBSNs.

## 5. CONCLUSION

In this paper, we propose a random walk based context-aware friend recommendation algorithm for LBSNs. Our friend recommendation algorithm considers social, personal and spatial context. RWCFR constructs a subgraph according to the current context of the user. This graph is given as an input to the random walk algorithm to rank the users for friend recommendation.

According to the results of the experiments, RWCFR performs better than all the baselines for all of the datasets. This is due to the fact that RWCFR is a multi-criteria algorithm, and it considers personal, spatial and social context together and fuses this data using our LBSN model. In addition to this, our recommendation approach does not need to update any existing model or structure, such as tensors, as in the case of CF-based approaches. Our subgraph is constructed dynamically using efficient queries through a graph database.

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