

MODELING URBAN BEHAVIOR BY
MINING GEOTAGGED SOCIAL DATA

Technofist,

YES Complex, 19/3&4, 2nd Floor, Dinnur Main Road, R.T.Nagar, Bangalore-560032

Ph: 080-40969981, Website: www.technofist.com. E-mail: technofist.projects@gmail.com

Abstract:

Data generated on location-based social networks provide rich information on the whereabouts of urban dwellers. Specifically, such data reveal who spends time where, when, and on what type of activity (e.g., shopping at a mall, or dining at a restaurant). That information can, in turn, be used to describe city regions in terms of activity that takes place therein. For example, the data might reveal that citizens visit one region mainly for shopping in the morning, while another for dining in the evening. Furthermore, once such a description is available, one can ask more elaborate questions. For example, one might ask what features distinguish one region from another – some regions might be different in terms of the type of venues they host and others in terms of the visitors they attract. As another example, one might ask which regions are similar across cities. In this paper, we present a method to answer such questions using publicly shared Foursquare data. Our analysis makes use of a probabilistic model, the features of which include the exact location of activity, the users who participate in the activity, as well as the time of the day and day of week the activity takes place. Compared to previous approaches to similar tasks, our probabilistic modeling approach allows us to make minimal assumptions about the data – which relieves us from having to set arbitrary parameters in our analysis.

Technofist,

YES Complex, 19/3&4, 2nd Floor, Dinnur Main Road, R.T.Nagar, Bangalore-560032

Ph: 080-40969981, Website: www.technofist.com. E-mail: technofist.projects@gmail.com

Introduction:

Cities are massive and complex systems, the organization of which we often find difficult to grasp as individuals. Those who live in cities get to know aspects of them through personal experiences: from the cramped bar where we celebrate the success of our favorite sports team to the quiet cafe where we read a book on Sunday morning. As our daily lives become more digitized, those personal experiences leave digital traces, that we can analyse to understand better how we experience our cities. To offer an example, we aim to automatically discover a decomposition of a city into (potentially overlapping) regions, such that one region is possibly associated, say, with shopping centers that are active in the morning, while another is associated with dining venues that are active in the evening. We take a probabilistic approach to the task, so as to relieve ourselves from having to make arbitrary decisions about crucial aspects of the analysis – e.g., the number of such regions or the granularity level of the analysis. This probabilistic approach also provides a principled way to argue about the importance of different features for our analysis – e.g., is the separation of regions mostly due to the different categories of venues therein, or is it due to the different visitors they attract.

Technofist,

YES Complex, 19/3&4, 2nd Floor, Dinnur Main Road, R.T.Nagar, Bangalore-560032

Ph:080-40969981, Website: www.technofist.com. E-mail: technofist.projects@gmail.com