החוג לניהול מידע וידע

The Department of Information and Knowledge Management

הפקולטה לניהול
Faculty of Management

Community Identification and Characterization Based On Geolocational Big Data

Adi Zmirli
Advisor: Dr. Ron Bekkerman, University of Haifa

Advanced technology combined with huge amounts of data which is being produced by users in the information era provides a rare opportunity for social research. This powerful combination is natively carried by smartphones which makes them a portable sensing platform. In this work, we analyze Big Data collected by hundreds of thousands of smartphones. The data is provided to us by WeFi – an Israeli startup company. The data consists of app usage and geolocation records of WeFi users. We employ Big Data analytics techniques to identify communities of users, according to their movement patterns. We then characterize the behavior of those communities in comparison to others. For example, we identify residence districts of WeFi users, as well as their work districts. Based on the demographic data per residential district, we can characterize user communities according to a variety of factors, such as their ethnicity or income. Based on the users' work location data, we can infer their occupation or professional function.

We will investigate behavioral patterns of communities that differ economically, demographically, and occupationally. For example, we intend to prove a hypothesis that rich people are more "outdoorsy" than poor people. We also want to show that app usage of students differs significantly from the app usage of non-student WeFi users. Another interesting question we want to investigate is detecting anomalies in people's behavior. For instance, we will show that a local event can be detected based on an increase in smartphone usage at a certain geolocation and a certain time.

This work aims to show that Big Data analytics is an effective, innovative, and accessible methodology for behavioral and social research.

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Mount Carmel, Haifa 31905 , Israel, Phone: 04-8288963 : טל' הר הכרמל, חיפה 31905

Fax: 04- 8249194 :פקס E-mail: ischool@univ.haifa.ac.il :דוא"ל http://management.haifa.ac.il