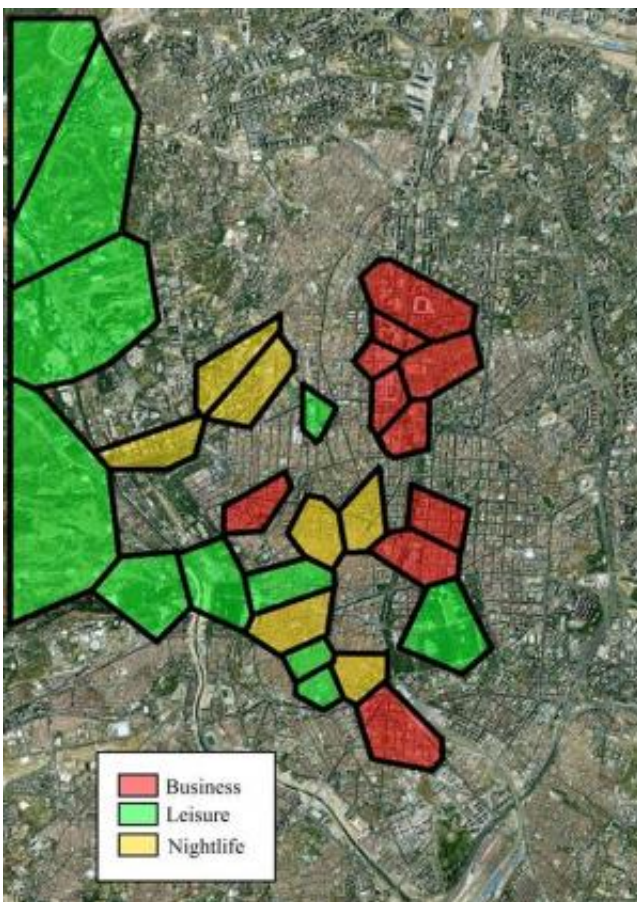


What you tweet when you go party can be useful for improving urban planning

December 29 2014



Layout of business, nightlife and leisure areas in Madrid using Twitter. The uncoloured part corresponds to residential areas. Credit: V. y E. Frías-Martínez

Millions of Twitter users are constantly reporting where they are and what they are doing. With this information, two Spanish computer

science experts suggest using geolocalized tweets for urban planning and land use. They have already done it in Manhattan, Madrid and London and have been able to identify, for example, nightlife areas of these large cities.

Every day millions of citizens around the world generate massive amounts of geolocalized content using mobile applications and social networks. Especially on Twitter, which could become a sensor of interactions between people and their environment and provide guidelines for planning life in the city.. A forgotten issue in urbanism is land use during the night time, with problems such as noise and dirt, which could be improved with this type of tool.

At least this is what Enrique and Vanessa Frías-Martínez believe, brother and sister and computer science researchers at Telefonica Research and the University of Maryland (USA) respectively, who have suggested using geolocalized [tweets](#) for urban planning and land use. Their study's results were published in 'Engineering Applications of Artificial Intelligence'.

As Enrique Frías-Martínez explained to SINC, "geolocalized tweets can be a very useful source of [information](#) for planning, since it is an activity carried out by a large number of people who provide information on where they are at a specific time and what they are doing".

The researcher points out that "thanks to the increased use of smartphones, social networks like Twitter and Facebook have made it possible to access and produce information ubiquitously".

Geolocation tags

These networks, he adds, generate tags with the event's geolocation. "For example, Twitter includes longitude-latitude information in the tweet if

the user so desires. Amongst possible applications we have seen that this network could be highly suited to helping in urban planning, especially in identifying land use".

Using Twitter, says Enrique Frías-Martínez, "you can capture information on urban land use more efficiently and for a much larger number of people than with questionnaires. Moreover, this type of consultation, traditionally used until now in planning activities, are very costly and can cause problems due to the lack of accuracy of the answers".

The new technique "automatically determines land uses in urban areas by grouping together geographical regions with similar patterns of Twitter activity," says the researcher.

Using aggregate activity of tweets, the Frías-Martínez siblings have studied land use in Manhattan, Madrid and London. In the first two cases they identified four uses: residential, business, daytime leisure (mainly parks and tourist areas) and nightlife areas. In London, they also established industrial land uses. These results were validated with open data sources.

Nightlife

"One of the most interesting contributions of the study is the identification of nightlife areas, since this type of land use is not often specified in [urban planning](#), despite the problems of noise, security and need for cleaning that this creates. Therefore, this information is very relevant," says Frías-Martínez.

In this respect, the study has determined that, in Madrid, night-time tweet activity is concentrated on weekends and in Manhattan, on weekdays. On the other hand, London is characterised by its tweeting

activity in daytime leisure areas.

More information: Vanessa Frías-Martinez y Enrique Frías-Martinez. "Spectral Clustering for Sensing Urban Land Use using Twitter Activity". *Engineering Applications of Artificial Intelligence* (Oct, 2014)

Provided by Plataforma SINC

Citation: What you tweet when you go party can be useful for improving urban planning (2014, December 29) retrieved 11 May 2024 from <https://phys.org/news/2014-12-tweet-party-urban.html>

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