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LÍNEA DE GESTIÓN Y VALORACIÓN URBANA Y ARQUITECTÓNICA

RESUMEN PROPUESTA DE TESIS

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Título de la Propuesta de tesis: Identification of urban functional districts in Beijing using the MoBike opening data and points of interest data

Resumen de la tesis

Cities comprise various functional zones, including residential, educational, commercial, industrial zones, etc... It is important for urban planners to identify different functional zones and understand their spatial structure with the city in order to make better urban plans. Micro data is difficult to collect, so classic urban studies are often carried out on the macroscopic scale. In recent years, large-scale, high quality individual space-time data is easier to be obtained due to the rapid development of the LBS (Location Based Service) technology. Using the micro data and data mining technology in the real city urban refinement study has become a main trend of urban studies. In this research, we used 3017,543 MoBike bike-sharing order data (including user name, latitude and longitude, start time and end time, date, bicycle type) of Beijing City in two weeks in May 2017.Then, through data mining in the big database system and previous studies on citizens' trip behavior, establish the DZoF (Discovering Zones of different Functions) model based on MoBike cycling data and POIs (Points of Interest), and pooled the results at the TAZ (Traffic Analysis Zone) level. The results suggested that DzoF model and cluster analysis based on dimensionality reduction and EM (Expectation-Maximization) algorithm can identify functional zones. The proposed method is demonstrated and verified with real data collected in Beijing. The methodology in the present research can help urban planners and the public understand the complex urban spatial structure and contribute to the academia of urban geography and urban planning.

Keyword: Sharing Bicycle; Opening data; spatial-temporal characteristics; points of interest (POI); functional zones; Beijing;

Hypothesis：
It is assumed that the result of cluster analysis based on MoBike bike-sharing commuting data during the weekdays is particularly effective in identifying commercial and residential districts.

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