

# Dou Xinyu

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## Skills

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### English:

CET-6: 535

### Computer:

Master in Microsoft Office (WORD, EXCEL, PPT); familiar with CorelDraw; proficient in Python language; skilled in using ArcMap, SPSS and MATLAB software to analyze spatio-temporal data.

### Math:

Familiar with advanced mathematics, linear algebra and mathematical statistics; interested in model and heuristic algorithm (I won Honorable Mention of Interdisciplinary Contest In Modeling).

## Education

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🌐 Sep. 2015– present School of Geographic Sciences, East China Normal University, Geographic Information Science

【Grade】 Rank: 2/37; GPA: 3.79/4.0

## Research

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### 🌐 Impact of metro passenger flow on housing prices: an analysis using smartcard big data

\* Xinyu Dou, Guangyu Ding, Zhongjia Wei and Na Ta, “Impact of metro passenger flow on housing prices: an analysis using smartcard big data,” *Habitat International* (under review).

This study uses the Python language to extract the passenger flow from metro smartcard **big data**, and uses MATLAB to analyze the different effecting ranges of metro stations in different locations. Finally, ArcGIS is used for **spatial autocorrelation** analysis, and SPSS software is used to construct the **hedonic price model**. The relationship between metro passenger flow and hot spots of housing prices surrounding metro is shown in Fig.1.

The results show the influencing spheres of the metro stations gradually increase from inner circle to suburban area. Moreover, employment flow has positive impact on housing prices while residential flow has negative one.

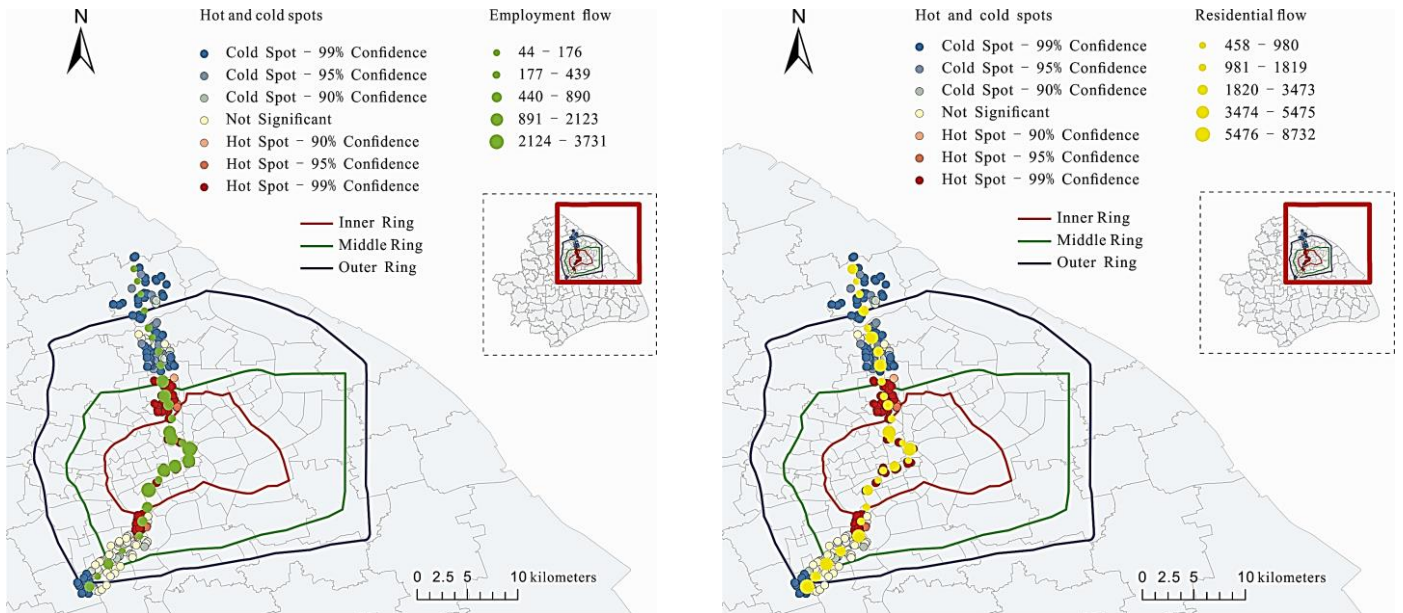


Fig.1 Spatial autocorrelation results

### 3D building reconstruction and sunshine analysis based on LiDAR data

\* Tianyang Lei and Xinyu Dou, “Sunshine Analysis and Visualization Based on LiDAR Data,” *Journal of Geomatics Science and Technology* (under review)

This research exploits high-resolution LiDAR data to quantify three-dimensional building morphology and its impacts on the spatio-temporal variability of sunlight in Beilun District, Ningbo, China. The CityEngine is used to realize the construction of the refined **3D model**. This model reflects the details of buildings’ sunshine directly and reliably. Moreover, as shown in Fig.2, the temporal 3D building-sunlight model can be shared on the Internet which would benefit the design and development of ‘smart city’.

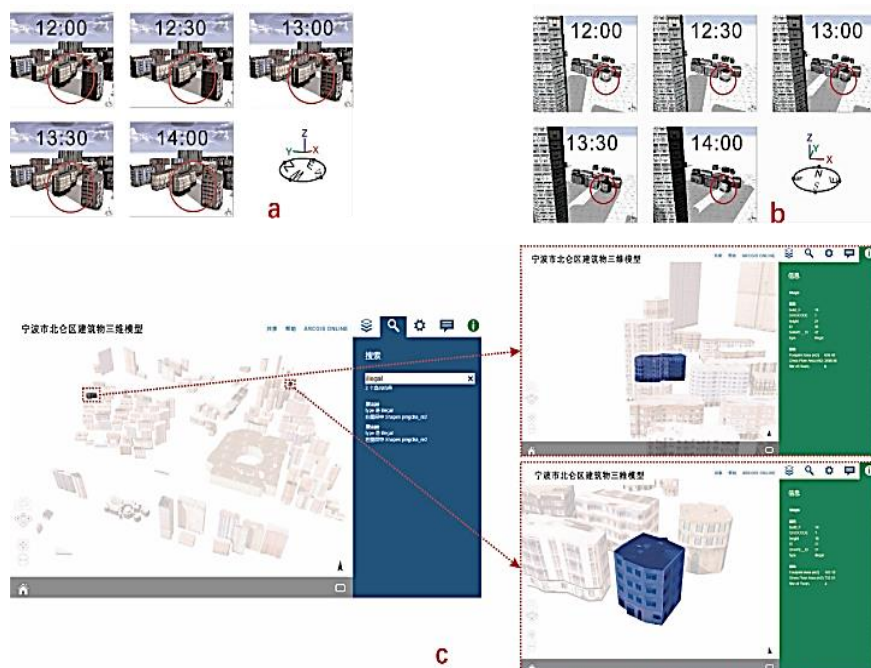


Fig.2 The temporal 3D building-sunlight model

## **Plant breeding game based on real-time weather and GPS**

(Member) (This project was awarded Second Prize of Shanghai Meteorological Data Apps)

This study associates the growth environment of the virtual plant with the real-time weather conditions, and uses the plant growth habits to dynamically simulate the different feedbacks of the plants in various weather conditions. To achieve **interactive plant collection** and **simulation cultivation**, we allow users to purchase the remedial facilities through the number of environmental points obtained by the number of steps.

## **Optimization of tourist route of destination based on improved genetic algorithm**

(The first author)

This study applies **improved genetic algorithm** to the tourist route optimization among cities in the Yangtze River Delta Area of China.

## **Honors and awards**

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- ✓ 2018: Honorable Mention of Interdisciplinary Contest In Modeling
- ✓ 2018: Second price of Shanghai SAIC Education Cup.
- ✓ 2018: Third Prize of Shanghai Computer Application Ability Contest
- ✓ 2017: Second Prize of Shanghai Meteorological Data Apps
- ✓ 2017: National Scholarship