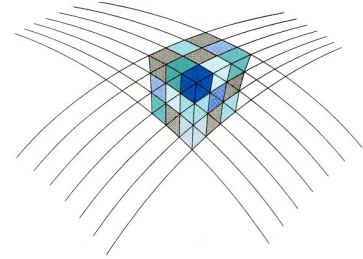


NCG



Netherlands Center for Geodesy and Geo-informatics

Abstract submission for the NCG Symposium 2020

Abstract submission deadline: **14 September 2020**

Please submit your abstract EasyChair

<https://easychair.org/conferences/?conf=ncg2020>

Name: Yue Ying, Mila Koeva, Monika Kuffer, Kwabena Obeng Asiama, Xia Li, Jaap Zevenbergen

Affiliation: Faculty of Geo-information Science and Earth Observation (ITC), University of Twente

E-mail: y.ying@utwente.nl; m.n.koeva@utwente.nl; m.kuffer@utwente.nl; asiama@gih.uni-hannover.de; lixia666@chd.edu.cn; j.a.zevenbergen@utwente.nl

Presentation title: Towards 3D property valuation: A case study of Xi'an, China

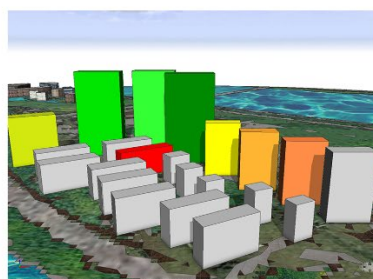
Demo: yes

Abstract (~100 words and optionally 1-2 figures):

While the urban environment continues to sprawl vertically, there is a lack of understanding of how property values of high-rise buildings are affected in the vertical dimension. This study assesses 2D and 3D models for property valuation using spatial data separately and proposes a workflow supporting 3D property valuation in Xi'an, China. Very low R^2 are obtained in 2D hedonic price models, showing a very limited generalisation potential. Next, a 3D model with four 3D factors, view quality, sky view factor (SVF), sunlight and property orientation, is generated. Herein the values of 3D factors are observed with considerable differences between properties, and they have a significant influence on property values. The higher R^2 shows the importance of 3D factors for property valuation in a complex urban environment. The findings reveal the potential of 3D modelling and the development necessity for a higher level of details (LoD) to serve fair property valuation.



Shown in storey levels



Shown in a solid building

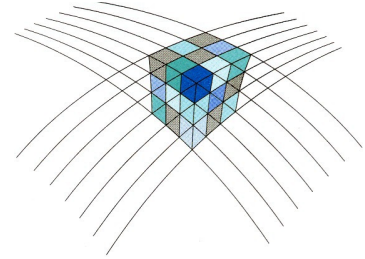
Neighbourhood Z

Legend

Price (yuan/m²)

Unknown	13756
11314	13856
11455	13942
11473	14797
13743	14830

Figure 1 Property value variation in different scales



Neighbourhood Y

Time zone : 8

Month : August

Legend

Price (yuan/m²)

	10502		11834
	10895		11855
	10897		12294

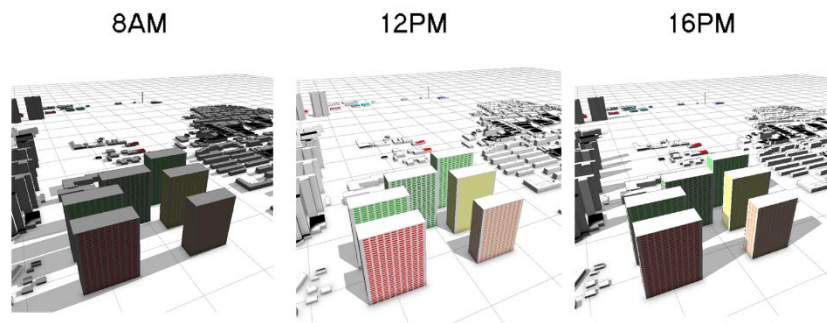


Figure 2 The comparison of sunlight at different times in a day. The colour indicates the property value (green-low and red-high). Land cover is set to invisible for better visualisation.