

Reconstructing urban contexts online for interactive urban designs

Chengzhi Peng and Peter Blundell Jones, School of Architecture, The University of Sheffield, Arts Tower, Western Bank, Sheffield S10 2TN, UK

The Sheffield Urban Contextual Databank (SUCoD) system was developed as a Web-based urban information system to host the urban data gathered by the Sheffield Urban Study programme. Our development of the SUCoD system provides user-centred dynamic retrieval and visualisation facilities for accessing multidimensional city datasets. The paper reports on a study of applying the SUCoD resources in an educational setting to explore its usability in two accounts: presenting urban site investigations as online urban narratives and the development of 3D schematic urban proposals. The current experiment suggests that SUCoD could be further developed into an online Urban Design Collaboratory.

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Keywords: design education, urban design, modelling, virtual reality, system design

The necessity of investigating and understanding an urban context in which an architectural design is to be developed has been constantly emphasised by civic authorities, design educators, critics and practitioners. At most schools of architecture, we can see that studio design projects often start with some form of contextual investigations of the city sites. The contextual study involves, typically, the gathering of information on the physical, historical and social aspects of an urban site, and the production of various kinds of records such as site drawings and models. Students then develop their proposals in relation to these contextual records. The results may turn out drastically in contrast with the existing conditions of the site or they may appear much blended into the urban setting.

From a pedagogical viewpoint, one could argue that architectural design can never be entirely 'site-determined', yet a general consensus seems to



- 1 Peng, C, Chang, D, Blundell Jones, P and Lawson, B** 'Exploring urban history and space online: design of the virtual Sheffield application' *Design Studies* Vol 23 No 5 (2002) 437–453
- 2 Peng, C, Chang, D, Blundell Jones, P and Lawson, B** 'Making Virtual Cities Dynamic' *International Journal of Design Computing, Special Issue on Designing Virtual Worlds* Vol 4, (2002) (<http://www.arch.usyd.edu.au/kcdc/journal/vol4/index.html>)
- 3 Peng, C, Chang, D, Blundell Jones, P and Lawson, B** 'Dynamic retrievals in an urban contextual databank system using Java-CGI communications' in **B de Vries, J van Leeuwen and H Achten** (eds) *Proceedings of Computer Aided Architectural Design Futures 2001*, 8–11 July, Eindhoven University of Technology, Eindhoven, The Netherlands, Kluwer Academic Publishers, Dordrecht (2001) pp 89–102
- 4 Ennis, G, Lindsay, M and Grant, M** 'VRML possibilities: the evolution of the Glasgow model' in *Proceedings of the Fifth International Conference on Virtual Systems and Multimedia (VSMM '99)*, Dundee, Scotland (1999)
- 5 McCullough, M and Hoinkes, R** 'Dynamic data sets as collaboration in urban design' in **M Tan and R Teh** (eds) *Proceedings of Computer Aided Architectural Design Futures 1995*, Centre for Advanced Studies in Architecture, Department of Architecture, National University of Singapore, 24–26 September, Singapore (1995)
- 6 Batty, M, Dodge, M and Jiang, B** 'GIS and urban design' in **S Geertman, S Openshaw and J Stillwell** (eds) *Geographical Information and Planning: European Perspectives*, Springer-Verlag, Berlin (1999) pp 43–65
- 7 Pietsch, S, Radford, A and Woodbury, R** 'Making and using a city model: Adelaide, Australia' in *Proceedings of the 19th eCAADe Conference*, 29–31 August, Helsinki (2001) pp 442–447

subscribe to the objective of fostering the students' appetites or inspirations for engaging in 'dialogues' with the urban contexts in question. Based on a recent experiment in an undergraduate urban design computing course, this paper reports a study on the usability and usefulness of a Web-based dynamic virtual city information system for directly supporting urban investigation and 3D urban design.

Since late 1999, we have been developing the Sheffield Urban Contextual Databank (SUCoD) system as a Web-based open-source repository to host historical records of the city of Sheffield.^{1–3} We are certainly not the first to explore how digital technologies could be applied to urban studies and design. In early 1980s, the ABACUS group at the University of Strathclyde pioneered 3D computer modelling technologies for visual simulation of the city of Glasgow at a large scale, which have generated numerous educational and industrial applications.⁴ Working in the combined architecture and landscape domain, McCullough and Hoinkes⁵ considered that central to urban design are 'dynamic, multivalent datasets for collaborative processes', which could be better supported through a rich urban information gathering and interaction environment. Similarly, collaborating with graduate urban design students at the Oxford Brookes University, Michael Batty and co-workers^{6]} investigated how geographical information systems (GIS) could be linked with computer-aided design (CAD) to provide intuitive GIS-driven visualisation and communication facilities for participative urban design. More recently, Susan Pietsch and colleagues⁷ reported their studies of using sections of the city models built for the city of Adelaide in student design projects. As seen from the related studies, the creation of urban contextual resources at a large scale and applying the digital resources in architectural and urban design still present considerable theoretical and technical challenges.

1 Studying the historical city fabric of Sheffield

The 'Sheffield Urban Study' programme was first launched in 1998 at the School of Architecture, University of Sheffield. The starting point for the Urban Study was a consensus among the staff that context is important, and that one should always know the history of a site in order to understand how it was formed and what it means, whatever use is eventually made of that information. By accessing and studying the historical maps and records from the City Archives, Local Studies Centre and the Hawley Collection, students at the Diploma School during 1998–2001 built a physical model of the city as it stood in the year 1900, at a scale of 1:500. This was accomplished by dividing the city with a grid into 200 m², each of which was investigated and modelled by a group of four or five students. They were asked to report on the ages and uses of all the buildings at the

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