

研究、探讨

3D对象动态方位邻接关系及双向关联表示

张丽平¹, 李松², 王红¹

1. 辽宁工程技术大学 电子与信息工程学院, 辽宁 葫芦岛 125105

2. 哈尔滨理工大学 计算机科学与技术学院, 哈尔滨 150080

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摘要 3D空间对象方位关系的表示和分析在空间数据库、地理信息系统、人工智能和机器人学等领域具有重要的意义。为了分析和处理复杂的3D空间对象的方位关系, 讨论了3种3D空间对象方位关系的立体表示模型: 3DR7模型、3DR27模型和3DR39模型, 给出了方位关系的交集序列; 研究了3D空间对象方位关系的动态邻接关系和处理方法; 进一步给出了3D空间对象方位关系的双向映射模型。研究成果为3D空间对象方位关系在空间数据库和地理信息系统等领域的应用奠定了基础。

关键词 [3D空间对象](#) [方位关系](#) [交集序列](#) [动态邻接关系](#)

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Dynamic direction adjacent relations and bidirectional association representation of 3D objects

ZHANG Li-ping¹, LI Song², WANG Hong¹

1. Department of Electronic and Information Engineering, Liaoning Technical University, Huludao, Liaoning 125105, China

2. Department of Computer Science and Technology, Harbin University of Science and Technology, Harbin 150080, China

Abstract

Representation and analysis about the direction relations of the 3D spatial objects have important significance in the spatial database, geographic information system, artificial intelligence and the robotics. To analyse and deal with the complex direction of the 3D spatial objects, the three tridimensional representation models such as the 3DR7 model, the 3DR27 model and the 3DR39 model are given, and the intersection sequences are also proposed. Furthermore, the dynamic direction adjacent relations and the bidirectional association representation of the 3D spatial objects are also studied. The research results lay the foundations for the applications of the direction relations of the 3D spatial objects in the spatial database and the geographic information system.

Key words [3D spatial object](#) [direction relations](#) [intersection sequence](#) [dynamic adjacent relation](#)

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通讯作者 张丽平 zhanglptg@163.com

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