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Titel des Beitrags: Real Time Processing of Large Data Sets from Built Infrastructure

Abstract: In this paper, we present a framework that gives the user a tool at hand to explore large data sets from built infrastructure. In a first step we describe the integration of fully detailed product models of constructions delivering the geometric and auxiliary information we build up our data exploration from. The main part of this paper follows by presenting the application of a hierarchical data structure, an octree, that is capable of holding building information for a whole region or even a country and the development of complexity reduction algorithms that allow the visualisation of those data. To exploit the full performance of modern hardware platforms, the application of parallelisation techniques is inevitable and we present the implementation of these techniques to the data processing steps performed in the framework. After introducing the framework, we show possible applications to various disciplines such as environmental and civil engineering, architecture, or disaster management.

Stichworte: Hierarchical Data Structures, Built Infrastructure (BIM/IFC), Parallel Computing, Interactivity, Algorithm Optimisation, Visualisation

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