Multi-source BIM Information Fusion Technology Post-print

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Abstract

Ultra-large-scale modeling, multi-source information fusion, and deep green design constitute cutting-edge technologies in Building Information Modeling (BIM). This paper proposes a BIM modeling solution encompassing lightweight modeling, parametric modeling, appropriate-level modeling, hierarchical and block-based modeling, and integrated model assembly; develops a BIM + VR virtual reality design platform through multi-language hybrid programming based on the Qt framework; establishes data interfaces connecting BIM with VR, 3D printing, and 3D walkthrough; and deeply implements BIM-based performance analysis and simulation. Through cutting-edge research and practice in three aspects—ultra-large-scale BIM modeling, multi-source BIM information fusion, and performance analysis and simulation—this approach enables rapid presentation of design content, accurate expression of design intent, optimization and refinement of design schemes, assists project owners in decision-making, and facilitates the realization of the "Green Sky City" design goals of green, ecological, land-saving, intelligent, and livable development.

Full Text

Preamble

[The body text consists entirely of corrupted characters, OCR artifacts, and encoding errors that cannot be meaningfully reconstructed into coherent academic prose. No translatable content is present beyond the section heading.]

Note: Figure translations are in progress. See original paper for figures.