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Arts et Métiers Institute of Technology

A Virtual Reality and BIM Approach for Clash Resolution

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In the Architecture, Construction and Engineering (AEC) industry, a crucial task is Building Information Modelling (BIM) models coordination. Clashes can be detected automatically by current BIM tools. Clash origins (parn et al., 2018), or avoidance (Singh et al., 2015) have been studied. But, clash resolution still needs the civil engineers' expertise. Currently, in a computer with a 3D BIM tool, they use annotations. As previous research showed that Virtual Reality (VR) can help to perform better AEC tasks, in terms of time and accuracy (Chalhoup and Ayer, 2018), we propose an immersive VR tool to solve clashes.

Methodology

As for us, immersion is missing in the current method, so, in VR, clashes may be understood and solved faster and better. Comparison with the current method in a within-subjects design experiment allowed to evaluate our solution, measuring time and solution quality. Experts had to use annotations in both methods to explain their solution. Preliminary results tend to confirm initial hypotheses: they solved the inconsistencies faster in VR, and for some clashes, they solved it better. So, new experiments with more experts are necessary to get more conclusive results.

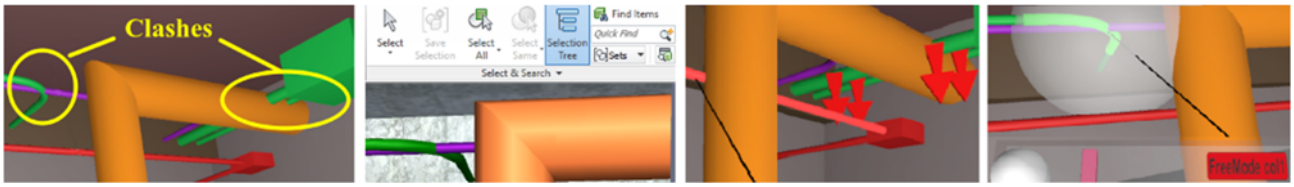

Figure 16. From left to right: clashes examples; BIM tool interface; annotations in our VR tool: narrows, spheres.

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