A Constraint-Solver Based Tool for User-Assisted Interactive 3D Layout

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Résumé en anglais	We propose to use constraint programming (CP) to assist the user in 3D layout of restricted virtual environments (VEs). With this aim in mind, we integrated a constraint solver, into a professional authoring tool allowing the development of 3D real-time applications. The solver is used to formalize and develop different types of layout constraints and to find a solution to a user-specified layout problem. A communication module was developed to transmit the solution to the VE which automatically re-arranges itself. Modeling the problem and finding solutions are completely transparent for the user since he/she interacts with the VE regardless of the resolution mechanisms. In addition to the automatic objects placement, the proposed system can be used to assist the user during a manual layout by providing visual informations about the areas in which a given object cannot be placed. An experimental study has been carried out to investigate the effect of the provided look ahead-based assistance on user performance in 3D layout tasks.
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