Design of sketch-based interface to enhance creativity in conceptual design

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Abstract

Sketching is a common method used in conceptual design. Its ambiguity inspires designers with new and unexpected alternatives for design ideas which enhance creativity in conceptual design. Sketch-based modeling appeared as an easy way for 3D sketching to open the way for digitizing sketching process. For that reason it focused on developing techniques and algorithms of converting 2D sketches into 3D models rather than enhancing creativity in sketching process. In this paper we present a new design for a sketch-based modeling interface to enhance creativity by considering sketching as an idea generation method, not a drawing process. This was done by separating 2D sketching and 3D modeling into two windows to make designers focus on idea development rather than being distrusted by 3D model creation. This interface uses gesture-based approach in 3D modeling as this approach is better for achieving integration with commercial CAD systems for more effectiveness of sketch-based interfaces. A new positioning method was developed to help designers to locate 3D objects in the scene easily with friendlier gestures and more accurate gesture recognition algorithm.