

The Methodology of Hand-Gesture Based Form Design in Digital Modeling

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Abstract : As the digital technology develops, studies on the TUI (Tangible User Interface) that links the physical environment utilizing the human senses with the virtual environment through the computer are actively being conducted. In addition, there has been a tremendous advance in computer design making through the use of computer-aided design techniques, which enable optimized decision-making through comparison with machine learning and parallel comparison of alternatives. However, a complex design that can respond to user requirements or performance can emerge through the intuition of the designer, but it is difficult to actualize the emerged design by the designer's ability alone. Ancillary tools such as Gaudí's Sandbag can be an instrument to reinforce and evolve emerged ideas from designers. With the advent of many commercial tools that support 3D objects, designers' intentions are easily reflected in their designs, but the degree of their reflection reflects their intentions according to the proficiency of design tools. This study embodies the environment in which the form can be implemented by the fingers of the most basic designer in the initial design phase of the complex type building design. Leapmotion is used as a sensor to recognize the hand motions of the designer, and it is converted into digital information to realize an environment that can be linked in real time in virtual reality (VR). In addition, the implemented design can be linked with Rhino™, a 3D authoring tool, and its plug-in Grasshopper™ in real time. As a result, it is possible to design sensibly using TUI, and it can serve as a tool for assisting designer intuition.

Keywords : design environment, digital modeling, hand gesture, TUI, virtual reality

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