

Searching the New Frontier in 3D Modeling

iWIRES: An Analyze-and-Edit Approach to Shape Manipulation. A complex model is analyzed and intelligent wires are extracted. Editing a few wires induces a new wire configuration and leads to different result in accordance to the general shape

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Man-made objects are largely dominated by a few typical features that carry special characteristics and engineered meanings. State-of-the-art deformation tools fall short at preserving such characteristic features and global structure. Because of that it is introduced iWIRES, a novel approach based on the argument that man-made models can be distilled using a few special 1D wires and their mutual relations. This team of researchers hypothesize that maintaining the properties of such a small number of wires allows preserving the defining characteristics of the entire object. They introduce an analyze-and-edit approach, where prior to editing, is performed a light-weight analysis of the input shape to extract a descriptive set of wires.

Analyzing the individual and mutual properties of the wires, and augmenting them with geometric attributes makes them intelligent and ready to be manipulated. Editing the object by modifying the intelligent wires leads to a powerful editing framework that retains the original design intent and object characteristics. They show numerous results of manipulation of man-made shapes using our editing technique.

This analyze-and-edit approach is based on the observation that man-made shapes can often be characterized by a few special curves or wires. During editing, by maintaining the individual characteristics of the wires and their mutual relationships, they attempt to preserve the essence of the manipulated shape.

More Information at www.cs.tau.ac.il/~galran/papers/iWires. Image and Video Courtesy of Ran Gal, Olga Sorkine, Niloy Mitra and Daniel Cohen-Or