Schelling Meshes

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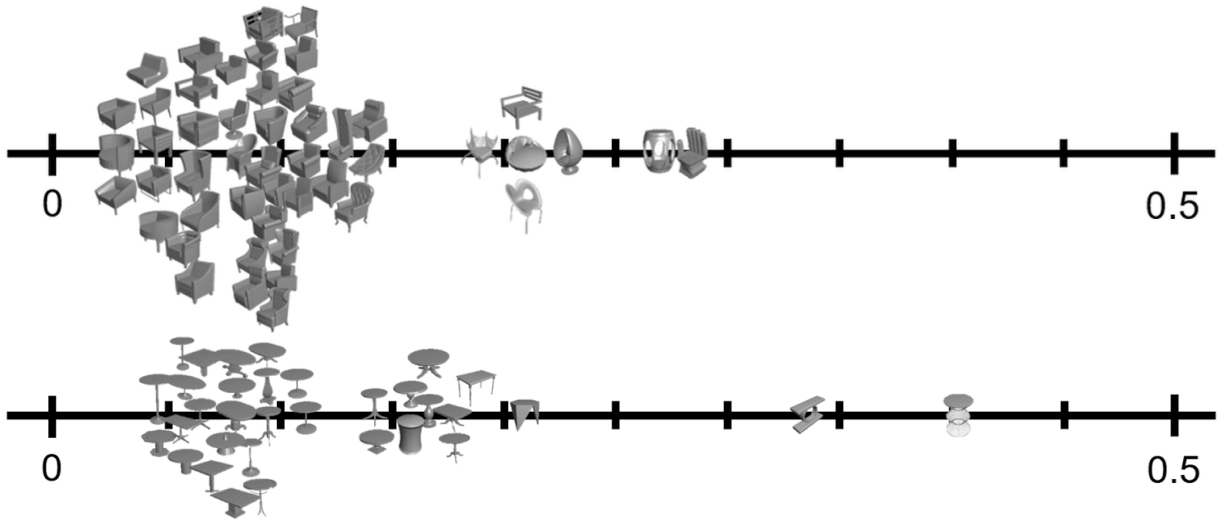

Figure 1: The shapes from the categories of chairs and tables are ranked according to their Schelling frequencies.

ABSTRACT

The concept of "Schelling points" on 3D shapes has been explored for points on the surface of a 3D mesh. In this poster abstract, we introduce the notion of "Schelling meshes" which extends the Schelling concept to the 3D meshes as a whole themselves.

CCS CONCEPTS

• **Computing methodologies** → *Perception*; *Mesh models*;

KEYWORDS

3D modeling, Schelling, crowdsourcing

Motivation. "Schelling points" are choices that are selected by people when they choose to match others' selections with no communication beforehand [Schelling 1981]. The notion of Schelling points on 3D meshes have been studied [Chen et al. 2012], where Schelling points are points on the surfaces of meshes that people expect will be selected by others. In this poster abstract, we extend this notion from points on the surfaces of 3D meshes to the meshes themselves. Instead of selecting among points on a mesh, people will select meshes among a set of meshes. We use the term "Schelling meshes" to describe the meshes that are selected this way. The notion of Schelling meshes can be another tool for 3D shape analysis and an understanding of them can lead to new Schelling-guided ways for clustering and search of 3D shapes.

Schelling Data Collection. We collect data for the notion of Schelling meshes by applying the Schelling concept of asking people to choose answers that they expect others will choose. For the case of 3D meshes, we provide participants with groups of 3D shapes and ask them to choose any number of shapes from each group with the goal of matching the selections made by other participants. We obtained various categories of 3D shapes (e.g. chairs, tables, lamps, and abstracts) from *ShapeNet* [Chang et al. 2015] and collected such Schelling data via crowdsourcing.

Initial Results. We define the "Schelling frequency" of a shape to be how often it is chosen in a Schelling sense according to collected data. Although the Schelling concept is a relative concept, we compute the Schelling frequency for each shape in order to give a score for every shape (Figure 1). We have initially found that shapes that are more strange, non-typical, and/or different from the others tend to have higher Schelling frequencies. We believe that the concept of Schelling meshes can be useful for the applications of Schelling-based clustering and Schelling-based shape search.

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