Investigating features influence in fuzzy modelling of mass perception of non–functional 3D CAD forms - DTU Orbit (19/08/2019)

**Investigating features influence in fuzzy modelling of mass perception of non–functional 3D CAD forms**

Users react to products without knowing the intended Kansei integrated into them by the designer. Human beings are equipped with variable preference mechanism. It is argued that human attributes result from three different levels of brain mechanism: the visceral, the behavioural, and the reflective levels. This paper focuses upon the visceral level through the building of a link between geometric properties of non–functional 3D forms and the human perception of these by users. This link is created using a genetic algorithm combined with a fuzzy logic decision support system. Human evaluations of the non–functional 3D shapes against two contrary perception adjectives (massive and light) are used as the learning data set for the genetic algorithm. Eight fuzzy models were developed using different sets of quantitative geometric properties as inputs resulting into different sets of fuzzy design rules. Correlations as high as 99%, between fuzzy and human perception, were obtained.

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