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A Design for Customer Preferences Model by Cluster Analysis of Geometric Features and Customer Preferences

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Abstract : In the design cycle, a main design task is to determine the external shape of the product. The external shape of a product is one of the key factors that can affect the customers’ preferences linking to the motivation to buy the product, especially in the case of a consumer electronic product such as a mobile phone. The relationship between the external shape and the customer preferences needs to be studied to enhance the customer’s purchase desire and action. In this research, a design for customer preferences model is developed for investigating the relationships between the external shape and the customer preferences of a product. In the first stage, the names of the geometric features are collected and evaluated from the data of the specified internet web pages using the developed text miner. The key geometric features can be determined if the number of occurrence on the web pages is relatively high. For each key geometric feature, the numerical values are explored using the text miner to collect the internet data from the web pages. In the second stage, a cluster analysis model is developed to evaluate the numerical values of the key geometric features to divide the external shapes into several groups. Several design suggestion cases can be proposed, for example, large model, mid-size model, and mini model, for designing a mobile phone. A customer preference index is developed by evaluating the numerical data of each of the key geometric features of the design suggestion cases. The design suggestion case with the top ranking of the customer preference index can be selected as the final design of the product. In this paper, an example product of a notebook computer is illustrated. It shows that the external shape of a product can be used to drive customer preferences. The presented design for customer preferences model is useful for determining a suitable external shape of the product to increase customer preferences.

Keywords : cluster analysis, customer preferences, design evaluation, design for customer preferences, product design
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