

An Inquiry-based Method for Choquet Integral-based Aggregation of Interface Usability Parameters.

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Abstract: The concept of usability of man-machine interfaces is usually judged in terms of a number of aspects or attributes that are known to be subject to some rough correlations, and that are in many cases given different importance, depending on the context of use of the application. In consequence, the automation of judgment processes regarding the overall usability of concrete interfaces requires the design of aggregation operators that are capable of modeling approximate or ill-defined interactions among criteria. In addition, justified expert opinions are given a prominent status in the current practice of usability evaluation, which points to the convenience of including experts as an integral part of the aggregation operator design process. On the basis of these assumptions we review in this paper possible approaches to design a suitable aggregation operation and describe a method for such kind of design process that explicitly models expert-elicited relationships among criteria, enforcing some properties on a Choquet capacity. The method subsequently uses experimental data to fine-tune operator design. A case study is described to illustrate the method, and a comparative study with other common aggregation approaches is also provided.

Keywords: usability; Choquet integral; inquiry methods;

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