

A NEW ALGORITHM OF SOFTWARE QUALITY EVALUATION FOR USER SATISFACTION

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ABSTRACT. *In this study, we propose a new fuzzy assessment method to choose a better software quality suitable for end-users. This study presents a model to obtain the integrated software quality for evaluating user satisfaction using fuzzy set theory. The model categorizes software product attributes into six characteristics, which are further subdivided into 20 sub-characteristics. The proposed fuzzy assessment method is more efficiently, closer to evaluator real thinking and more useful than the ones they have presented before.*

Keywords: User satisfaction, Linguistic variables, Fuzzy relation

1. **Introduction.** For software developer, manager, or maintainer, software products are powerful but hard to revise, modify, expand or transfer. Therefore, how to promote the quality of software is an important issue.

Nowadays software products are used in an increasingly wide variety of application areas, and their correct operation is often critical for business success and/or human safety. Therefore, developing or selecting high quality software is a prime importance [3]. Software quality was assessed with software attributes but its complexity and unpredictable nature cannot be easily processed. Therefore, how to build an effective software quality measure model becomes an important issue. In the early 1990s, the software engineering community attempted to consolidate the many views of quality into one model that could act as a worldwide standard for measuring software quality. The ISO 9126 standard [3] was created by the ISO (the International Organization for Standardization) and IEC (International Electrotechnical Commission). The ISO 9126 standard, a hierarchical model with six major attributes contributing to quality [3]. Based on [1,3,5,6,10,11,13], Wang and Chiang [14] proposed a hierarchical structure model to tackle the user satisfaction in a fuzzy environment as shown in Table 1, where the attribute to be denoted as X_i and the items as X_{ij} .

With regard to fuzzy decision-making problem, Kao and Wu [4] presented new dynamic approaches in information technology (IT) investment evaluation for Taiwan and China, they applied fuzzy rule for decision-making to examine the benefit of IT investment. Lee [6] applied fuzzy set theory to evaluate the aggregative risk in software development under fuzzy circumstances. Lin and Lee [7,8] presented facility site selection model using fuzzy set theory. Wang and Chen [15] presented two new methods for evaluating students'