

Verification and Validation Methods Selection Based on Goal-Oriented Categorization for Simulations

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Abstract—Performing the verification and validation (V&V) activities is crucial during a software project lifecycle to ensure quality control in terms of both specifications and requirements. Accordingly, it is also very important to provide the accuracy and degree of credibility of any simulation software by using the proper methods. However, plenty of V&V methods have been created to be applied in the V&V process for simulation models until the end of last half century. Therefore, the method selection process required to perform V&V activities tends to be complex, especially when planning feasibility and cost issues for various simulation projects. This paper introduces Goal Oriented Categorization (GOC) approach as a dynamic V&V method selection strategy. It outlines two main techniques for constructing the GOC model: i) using a default criterion, categorizing V&V methods based on their identified features; and ii) setting a specific goal to categorize V&V methods when simulation project management information and relevant software metrics are obtainable. Thus, the selection process of the simulation V&V methods, which will be carried out in accordance with the relevant project or certain criteria will be facilitated by the GOC.

Keywords—*verification and validation, simulation, test, metric, method selection*