

Optimal Software Testing

Elshafei, M; Khan, M; Boraie, M

C S R E A PRESS, SERP"04: PROCEEDINGS OF THE INTERNATIONAL CONFERENCE
ON SOFTWARE

ENGINEERING RESEARCH AND PRACTICE, VOLS 1 AND 2; pp: 615-620; Vol: ##

King Fahd University of Petroleum & Minerals

<http://www.kfupm.edu.sa>

Summary

In this paper, we formulate an optimal testing procedure for software. The objective function is taken to be the expected value of the cost associated with accepting faulty software plus the expected value of the accumulated cost of testing. The model can be used to design optimal testing plans for unit testing as well as for complete programs. The model assigns different costs for normal bugs and major bugs, and considers the costs of various types of misclassification as well. The model is demonstrated by an example, and the cost function is plotted for a range of test cycles to illustrate the minimum cost solution.

References:

1. BEIZER B, 1990, SOFTWARE TESTING TEC
2. HAMLET R, 1989, P 4 ANN C SYST INT S, P42
3. JONES C, 1991, APPL SOFTWARE MEASUR
4. LUO G, 1995, SOFTWARE ENG J, V10, P245
5. RAKITIN SR, 1997, SOFTWARE VERIFICATIO
6. SOMMERVILLE I, 1994, SOFTWARE ENG
7. WU Y, 2001, P 7 IEEE INT C ENG C, P222

For pre-prints please write to: abstracts@kfupm.edu.sa