

Simao, A., Petrenko, A. and Maldonado, J. C. "Comparing finite state machine test coverage criteria" *IET Software*, 3 (2) April 2009 : 91-105.

Abstract

To plan testing activities, testers face the challenge of determining a strategy, including a test coverage criterion that offers an acceptable compromise between the available resources and test goals. Known theoretical properties of coverage criteria do not always help and, thus, empirical data are needed. The results of an experimental evaluation of several coverage criteria for finite state machines (FSMs) are presented, namely, state and transition coverage; initialisation fault and transition fault coverage. The first two criteria focus on FSM structure, whereas the other two on potential faults in FSM implementations. The authors elaborate a comparison approach that includes random generation of FSM, construction of an adequate test suite and test minimisation for each criterion to ensure that tests are obtained in a uniform way. The last step uses an improved greedy algorithm.