

Petrenko, A., Boroday, S. and Groz, R. "Confirming Configurations in EFSM Testing" *IEEE Transactions on Software Engineering*, 30 (1) January 2004 : 29-42.

Abstract

In this paper, we investigate the problem of configuration verification for the extended FSM (EFSM) model. This is an extension of the FSM state identification problem. Specifically, given a configuration ("state vector") and an arbitrary set of configurations, determine an input sequence such that the EFSM in the given configuration produces an output sequence different from that of the configurations in the given set or at least in a maximal proper subset. Such a sequence can be used in a test case to confirm the destination configuration of a particular EFSM transition. We demonstrate that this problem could be reduced to the EFSM traversal problem, so that the existing methods and tools developed in the context of model checking become applicable. We introduce notions of EFSM projections and products and, based on these notions, we develop a theoretical framework for determining configuration-confirming sequences. The proposed approach is illustrated on a realistic example.

Keywords : Formal methods, test design, model checking, extended finite state machine, functional testing, conformance testing, test derivation, state identification, model-based testing