

Application Research of Computers, published by Ministry of Science and Technology, China
To appear in 2016/03, and have been Published on CNKI database in advance.

Graphic User Interface Testing Based on Petri Net

Lin Tao, Gao Jianhua

(Department of Computer Science and Technology, Shanghai Normal University, Shanghai 200234, china)

Abstract: In environment of undetermined and context-sensitive, graphic user interface testing mainly depend on random testing and testers' professional experience, the effectiveness being low. It is an unresolved puzzle for graphic user interface testing. Therefore, it is brought in the Petri net theory in the discrete and parallel system, defining concepts of event, events sequence, and events decomposition in graphic user interface. It is introduced some significant properties of Petri net, such as reachability, roundedness, liveness and strong connectedness to this field, so as to improve the coverage and efficiency of graphic user interface testing. In addition, an attempt to solve six category bugs in graphic user interface, such as non-reachability, not strong connected, dead-lock, unbounded, not suitable to the original model and error jumping is conducted. The experiment proves that graphic user interface testing based on Petri net is more effective than traditional simple random test in coverage of events, code lines as well as the number of fault detection.

Keywords: Software Bug, Event Sequences, Petri Net, Graphic User Interface , Reachability, Liveness