

Haydar, M., Malak, G., Sahraoui, H., Petrenko, A. and S. Boroday. "Anomaly Detection and Quality Evaluation of Web Applications" In Calero, C. Moraga, M. A. and M. Piattini (Drs). *Handbook of Research on Web Information Systems Quality*, Chapter V, pp. 86-103. Hershey, PA : IGI Global, 2008. (Forthcoming)

Abstract

This chapter addresses the problem of Web application quality assessment from two perspectives. First, it shows the use of model checking of properties formulated in LTL to detect anomalies in Web applications. Anomalies can be derived from standard quality principles or defined for a specific organization or application. The detection is performed on communicating automata models inferred from execution traces. Second, the chapter explains how probabilistic models (Bayesian Networks) can be built and used to evaluate quality characteristics. The structure of the networks is defined by refinement of existing models, where the parameters (probabilities and probability tables) are set using expert judgment and fuzzy clustering of empirical data. The two proposed approaches are evaluated and a discussion on how they complement each other is presented.