

Automatic Identification Roles of Design Patterns from the Source Code by Machine Learning Approach

Mahnaz Baghdar

Saeed Jalili

Electrical and Computer Engineering Faculty, Tarbiat Modares University, Tehran, Iran

ABSTRACT

Recovering the instances of design patterns from the source code is useful to support software maintenance, reverse engineering and also to conformance checking of design and implementation. In addition, various implementations of a design pattern making its detection a difficult task. Since each design pattern is a set of roles which are played by classes in a program and, in fact, roles are the main components of design patterns, by determining the role that each class plays in a pattern instance, the program design patterns can be identified. In this paper, a method is proposed for identifying roles of design patterns from the source code, which maps the problem of recognizing roles into a machine learning problem. Results of experiments using actual programs indicate that the proposed method is a relatively successful method.

Keywords: Design Pattern Detection, Identification Roles of Design Patterns, Machine Learning.