

Software Component Identification from Its Object-Oriented Code: Graph Metrics Based Approach

Authors : Manel Brichni, Abdelhak-Djamel Seriai

Abstract : Systems are increasingly complex. To reduce their complexity, an abstract view of the system can simplify its development. To overcome this problem, we propose a method to decompose systems into subsystems while reducing their coupling. These subsystems represent components. Consisting of an existing object-oriented systems, the main idea of our approach is based on modelling as graphs all entities of an oriented object source code. Such modelling is easy to handle, so we can apply restructuring algorithms based on graph metrics. The particularity of our approach consists in integrating in addition to standard metrics, such as coupling and cohesion, some graph metrics giving more precision during the components identification. To treat this problem, we relied on the ROMANTIC approach that proposed a component-based software architecture recovery from an object oriented system.

Keywords : software reengineering, software component and interfaces, metrics, graphs

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