Editorial

Following the mission of e-Informatica Software Engineering Journal, we present this ninth edition with seven scientific papers. The papers refer to different topics, but belong to the scope of the journal, including methods, practices, technologies and tools in the software development cycle, with particular emphasis on empirical evaluation.

The first paper by Bluemke and Rembiszewski (*Data Flow Approach to Testing Java Programs Supported with DFC* [1]) presents the data flow coverage testing of Java programs. In general, the data flow is considered an effective testing technique for fault localization, but it is not used in industry because supporting tools are not scalable for large programs. The proposed original testing method and the elaborated tool, as an Eclipse plug-in, brings hope to overcome this obstacle. The tool was applied for comparison of testing Java programs using data flow and mutation techniques. The results show that the effectiveness of mutation testing is higher than the effectiveness of data flow testing, but mutation techniques appear to be more expensive than the data flow if time and effort are considered.

The subject of the second paper by Jureczko and Madeyski (*Cross-Project Defect Prediction with Respect to Code Ownership Model: An Empirical Study* [2]) is a statistical analysis of several dozen versions of industrial, open-source and academic projects. The main result of the analysis shows that the open-source, industrial and academic projects may be treated as separate categories of projects with regard to defects prediction, and, in consequence, the prediction models trained on the projects depend on project category. This result does not seem to be surprising, but a more interesting issue is identification of the reasons for these differences. The work makes the next step towards cross-project reusability of defect prediction models and facilitates their adoption, which has been very limited so far.

How to detect conflicts and dependencies in refactoring during software design is the leading problem discussed in the third paper by Moghadam, and Ó Cinnéide (*Resolving Conflict and Dependency in Refactoring to a Desired Design* [3]). A novel automated approach to refactoring scheduling in the presence of inter-refactoring conflicts and dependencies is proposed. Evaluation based on several sample programs and one non-trivial open source application demonstrates the ability of the approach to schedule the input refactorings to achieve the desired design for a medium-sized, real-world application.

A practical proposal of a meta-model for a quality assessment models of actual models expressed as process diagrams in BPMN 2.0 is proposed in the fourth paper by Sadowska (*An Approach to Assessing the Quality of Business Process Models Expressed in BPMN* [4]). The proposal is based on an elaborated quality model containing selected characteristics, respective metrics and, finally, proposed quality criterions. A programming tool implementing the meta-model was designed, and through a survey-based experiment was evaluated. The results showed the usefulness of the tool and the proposed approach.

The fifth paper by Polgár (*Using the Cognitive Walkthrough Method in Software Process Improvement* [5]) may be regarded as an introductory discussion on how to use the cognitive walkthrough method to improve the software development process. An outline of how to apply this method and what are the significant changes necessary for its implementation are briefly presented.

Instead of expensive combinatorial testing, t-way testing is usually adopted to trigger faults due to interactions between components in a component based software system. A genetic algorithm based on the greedy principle used to generate optimal variable strength covering array is the main focus of the sixth paper by Bansal et al. (*Construction of Variable Strength Covering Array for Combinatorial Testing Using a Greedy Approach to Genetic Algorithm* [6]). The proposed approach was evaluated on several benchmark configurations. The experiments showed that the elaborated algorithm, integrating greedy and meta-heuristic techniques, outperforms, except simulated annealing, other existing state-of-the-art algorithms in terms of variable strength covering array sizes.

In the last paper Wakil and Jawawi (*Model Driven Web Engineering: A Systematic Mapping Study* [7]) present a survey of more than 300 primary studies from last five years on Model Driven Web

Engineering (MDWE) mainly for identification of needs for future research. The paper brings a classification and statistics of the main research topics on MDWE (Web applications, services, modeling, requirements and design, testing and quality, development methodologies, management, and economics), publication forms (conferences, workshops, journals), and their character (validation, opinion, proposals, experience, evaluation).

We look forward to receiving high quality contributions from researchers and practitioners in software engineering for the next issue of the journal.

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