

# Foreword and Editorial

## International Journal of Software Engineering and Its Applications

We are very happy to publish this issue of an International Journal of Software Engineering and Its Applications by Science and Engineering Research Support soCietY and ICT Platform Society.

This issue contains 5 articles. Achieving such a high quality of papers would have been impossible without the huge work that was undertaken by the Editorial Board members and External Reviewers. We take this opportunity to thank them for their great support and cooperation.

In this paper “A Constraint-Based Verification Approach for Java Bytecode Programs”, we propose a constraint based analysis technique to detect the inconsistencies between a Java application and its specification at the Bytecode level. The main objective of our approach is not only to exploit the information of the user specification but also the memory constraints generated from the Java Bytecode of the application. Indeed, this allows us to detect the possible non-conformance between a program and its specification and also to explore the execution paths of the application looking at which of them may contain such inconsistencies. Nevertheless, the testing application and the user specification are not in the same level of abstraction. Thereby, we propose to wrap the method under test with its specification expressed as pre/post specifications at the Bytecode level, using the Static Bytecode Instrumentation.

This paper “A Survey of the Bug Localisation Techniques” presents a review and classification on 25 survey papers in the area of software bug localisation. Four categories of bug localisation techniques have been identified they are static, dynamic, Information retrieval and hybrid. Based on these identified categories 25 survey papers are systematically organized. Further it was found that Bug localisation was best performed when Information retrieval approaches were combined with other approaches. Even though many approaches are already available for bug localisation there is still deficiency for a technique which can be applied effectively in the real-time environment.

This article “Mathematical Model and Algorithms for some Type of Concurrency Control Problems in Database Applications” presents a general mathematical model to solve a group of database application related problems, which are designated as account management problems thereafter. It also presents general solutions to aforementioned problems, based on an appropriate combination of transaction isolation levels and update modes used for resolving. The proof of correctness of the algorithm and a performance analysis are done under some reasonable assumptions. The proposed solution is validated through some simulations and real implementation on number of projects.

This paper “IoT-based Software Platform for Delivering Ubiquitous Healthcare” presents the application of IoT-based Software Platform and addresses some essential parameters and characteristics of each of the applications of Ubiquitous Healthcare. Eminence healthcare is one of the utmost significant dynamics in how individuals perceive their quality of life. Internet of Things (IoT) visualizes a future in which any services can be interrelated by means of appropriate information and communication technologies which will bring technological revolution in the fields of smart homes, healthcare systems, monitoring and logistics.

This paper “A Study of a Elgg Framework for Social Networking Application Development” deals with the study of Elgg social networking framework for the development of a social networking application. The Elgg is an open source software development framework that can allow individuals, organization, and enterprises to share files, blogging and microblogging, and communicate through groups and networks. A case study of architecture of a social networking site will be provided in order to show the features of Elgg social networking framework.

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*Jinan Fiaidhi, Lakehead University, Canada*

**Editor of the June Issue on  
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