

## In this issue

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This inaugural issue contains original research works of many authors including members of editorial team from which papers were invited. The first research paper address topics related to cloud testing. The second paper is related to fault prediction for improving software quality. Identification of faulty classes in early phases of software development helps software testing community in performing efficient and effective testing and this paper is an important contribution in this area. The next two papers deal with software testing and aspect oriented visualization. The remaining papers are related to software metrics, defect prediction and software reliability.

Cloud computing offers testing as a service for clouds and cloud-based applications. The work of Jerry Gao, Xiaoying Bai, and Wei-Tek Tsai illustrates recent trends, needs, issues, practices and challenges in cloud-based testing. The authors present a comparative analysis of different commercial products and solutions available for cloud-based testing.

In “On the Applicability of Machine Learning Techniques for Object Oriented Software Fault Prediction”, Ruchika Malhotra and Yogesh Singh find the relationship amongst object oriented metrics and fault proneness of a class. They have used seven machine learning and one logistic regression method in order to predict faulty classes. This work will be particularly beneficial for practitioners and testers in producing defect free software at a reasonable cost.

In the work “On the Controlled Markov Chains Approach to Software Testing” by Kai-Yuan Cai, controlled Markov chains (CMC) approach is revisited, a new case study of adaptive testing is presented, and discussion on why the CMC approach or control-theoretic approach can work in practice is given. In addition the effectiveness of the CMC approach is shown on optimal stopping problem.

Jeffrey Koch and Kendra Cooper present and validate a three-step model-driven multiple-graph approach to automated program fact extraction that leverages existing reverse engineering technologies to support the demands of AspectJ reverse engineering. The authors conclude that the proposed approach will be useful in software projects such as source code metrics, automated test data generation and design visualizations.

In the work carried out by Philippe Dugerdil the autonomy ratio metric that measures the “functional structuring” of a system is proposed. He also presents a case study of the assessment of a

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large industrial system based on the proposed metrics and then reports findings from this experiment. The results show that the proposed metric is efficient and will offer number of benefits to software practitioners.

In “Significance of Different Software Metrics in Defect Prediction”, Marian Jureczko presents an empirical analysis of significance of different process and product metrics in defect prediction models. In order to validate these models, 48 releases of 15 open-source and 38 releases of 7 proprietary projects are investigated.

The final paper in this issue is based on software reliability. Apoorva Singhal and Ankur Singhal present a systematic review of software reliability research including 141 papers on software reliability in 34 journals. This paper is particularly interesting in the view of the increase in demand for reliable software.

This event is the result of cumulative hard work of editor-in-chief, members of editorial board, reviewers and myself. I would like to thanks all the members of the editorial board for their immense support and particularly Prof. Yogesh Singh for his valuable time, suggestions and unfailing support.

I would welcome any suggestions and comments on this inaugural issue and as Robert Frost has rightly said:

“The woods are lovely, dark, and deep,  
But I have promises to keep,  
And miles to go before I sleep,  
And miles to go before I sleep”.