

# From the Editor-in-Chief

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**Prof. P. B. Sharma<sup>1</sup>**

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As always I take immense pleasure in presenting to you this issue of SEIJ and hope that it shall inspire the researchers worldwide to utilize the knowledge and knowhow contained in this issue for newer applications and advancement of the frontiers of software engineering.

The first research paper deals with synchronization contract of software components. The second paper analyzes, compares and validates a test data generation technique proposed to reduce the testing time significantly. The third paper provides the optimization framework for component selection. The last two paper focus on method configuration and assessment of object oriented design characteristics.

The first research paper titled “Synchronization Level Specification and Matching of Software Components” authored by Anjali Kumari, Ketaki A. Pradhan, Lahiru S. Gallage, Rajeev R. Raje provides an approach for describing the synchronization contract. This paper also indicates rules for matching concurrency specifications of different components so that replaceability can be facilitated between these components. The proposed method is explained and validated with the help of a case study.

The need for efficient and effective test data generation techniques is increasing. The second paper titled “Empirical Validation of an Efficient Test Data Generation Algorithm Based on Adequacy Based Testing Criteria”, authored by P.B. Sharma, Ruchika Malhotra and Mohit Garg, validates a new test data generation algorithm using fifty real time programs written in C language. They compare

the algorithm with path testing and condition testing techniques for these fifty programs in two categories viz. number of generated test cases and the time taken to generate test cases. The results suggest that adequacy based algorithm is better than the reliability based path testing and condition testing techniques in both of these categories. Thus this algorithm may significantly reduce the time of test data generation.

An optimization framework which supports the decision whether to buy software components is introduced in the third paper. This paper is titled “Joint Optimization of ICD and Reliability for Component Selection in Designing Modules of the Software System Incorporating “Build-or-Buy” Scheme” and is authored by Indumati, P. C. Jha, and U. Dinesh Kumar. In this paper, the formulation of an optimization model of software component selection for software development is described and explained with help of an example.

“A Step towards Method Configuration from Situational Method Engineering”, authored by Daya Gupta and Rinky Dwivedi defines a two part Situational method engineering process. In the last paper titled “Role of Coupling in Vulnerability Propagation -Object Oriented Design Perspective,” authored by A.Agrawal and R.A. Khan, the impact of object oriented design characteristics on security is assessed. The paper investigates how coupling induces vulnerability propagation in an object oriented design.

I also welcome your comments and reviews on this issue.

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