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 & Engineering Research Support 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.

Paper "Utilisation of the System Advisor Model to Estimate Electricity Generation by Grid-Connected Photovoltaic Projects in all Regions of Brazil" states that Brazil has a large potential for capturing solar energy because of its location being near the equator. Previous studies have concentrated on estimating this potential using data on irradiation levels, whereas few studies have conducted statistical modeling with software that incorporates various types of photovoltaic modules, inverter current efficiency, losses in the system, and data on local weather conditions. The System Advisor Model (SAM) calculates output performance based on local weather conditions and all the system components for photovoltaic (PV) power projects. It is therefore an effective engineering tool for determining the feasibility of a photovoltaic project before its implementation. The main objective of this paper is to use SAM to simulate electricity production from a theoretical 2 MW photovoltaic (PV) projects installed in 19 cities in all regions of Brazil. It also compares these estimates with other studies conducted in Brazil and in other countries with large amounts of PV generation. The theoretical implementation of 19 power plants of 2 MW in all regions of Brazil would provide up to 50 GWh to the national grid in the first year. Petrolina is the city with the highest simulated output of 3 GWh, whereas Curitiba is the city with the lowest with 2 GWh.

In the work entitled "Behavioral Modeling of Enterprise Cloud Bus System: High Level Petri Net based Approach", a conceptual architecture of Multi-agent based Enterprise Cloud Bus System (ECBS) is proposed and modelled its dynamics using High Level Petri Net (HECBP) based approach. The proposed approach is beneficial for the cloud based enterprise applications in optimizing the performance, cost, elasticity, flexibility, high reliability and availability of the computing resource. The proposed mechanism is capable of modelling and analyzing the behavioral facets of Enterprise Cloud Bus which are structured based on Multi-agent based system (MAS) and the behavioral features of inter-cloud architecture. Using the HECBP concepts and corresponding reachability graph, several key behavioral properties of cloud based systems like, reachability, safeness, Boundedness, liveness can be analyzed formally. The proposed HECBP is simulated using Colored Petri Net tools.

In the study "News Real Time Recommendation Framework for Websites Contents", the expeditious magnification of technology in both software and hardware resulted in moving several industries such as media, news, publishing, and printing from classic approach to more digital approach. The experience of recommending products based on user's behavior showed huge impact on businesses. Many studies were done on batch processing and showed that the bottleneck in recommendation algorithms is the search for neighbors among a large user population of potential neighbors. This paper proposes a framework for recommending content for news websites to users in real time to increase

both user and business satisfactions using academic and news industry standards, it starts with gathering data and ending with delivering personalized recommendations per user. Results showed an improvement of users engagement when the recommendation was active; average user time was increased by 39.45%, while the users engagement with the recommendation feature was 22.9% of the users.

Authors of the paper "Measuring and Analyzing the Performance of the GUI Screens using Hotspot Identification" proposed a method of performance evaluation of the User Interfaces of the software programs by testing the software program with actual users of the software program and tracking there gaze point against the time. By using that information the software developers can find the hotspots of the User Interfaces and include the most important things to the user in those areas. So the software developers will be able to develop the User Interfaces of their programs attractive, efficient and effective manner which get more attention of the users of that software program.

In the article "Fuzzifying Telecommunication Network Features Basing PSO-TE Algorithm", Planning Telecommunication Access Network (TAN) infrastructure is a real time problem that suffers from uncertainty and ambiguity. Fuzzy system is a discipline that proved its capability to deal with vague problems. Converting traditional data to suit fuzzy system calculations is called fuzzification process which is a crucial step affecting the whole system accuracy? Generating appropriate membership function for fuzzy variables is one of the most challenging issues in fuzzy systems design. This paper proposes a solution to generate membership function automatically. An integrated hybrid model (PSO-TE) is introduced which benefit the Particle Swarm Optimization (PSO) and the information theory measures (entropy and mutual information) as the fitness function to adjust particles (membership function parameters). The proposed algorithm is tested using realistic planning information to show its effectiveness and efficiency. During the comparison between the PSO-TE and the fuzzy C-mean algorithm, the proposed model proved its ability to produce stable membership function for the telecommunication data barriers.

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