Editorial

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Welcome to V 17 N 3 issue of *IJWET*. This issue consists of four papers. The first paper is 'Tooled approach to interoperability monitoring with traceability for message-driven systems', by Kindson Munonye. According to this author, message-driven systems make it possible to gracefully accommodate unexpected downtimes and failures of coordinating applications. Previous studies focused on modelling broker-related data in the message-oriented middleware (MOM) component, but this research aims to integrate traceability interfaces to examine the message lifecycle from the generation at the producer client to the consumer with intermediate state persistence. This author argues that such analysis would enable IS developers to monitor data exchanges between the system and be able to detect and manage potential failures in message flows before it has any significant impact. Additionally, both conceptual and technological barriers to interoperability could be identified and mitigated.

This research proposes a model for traceability and metrics generation, not only from the message broker but from the producer and consumer clients interacting via HTTP. A messaging metamodel is proposed for aggregating interaction metadata. The author developed this model using RabbitMQ an open-source message broker and spring framework enhanced to include traceability interfaces. A web application-compatible tool was designed, prototyped, and implemented based on this metamodel. The author further argues that this approach helps not only for monitoring interactions but for the detection of potential interoperability-related issues and improving overall message throughput. A case study was used to demonstrate the feasibility of this approach. Further research is needed to verify the claim.

The second paper is 'Uncertain service selection using hesitant fuzzy sets and grey wolf optimisation', by Remaci Zeyneb Yasmina and Hadjila Fethallah. The quality of service (QoS) constitutes a crucial feature in cloud service selection (CSS) but dealing with complex user requirements and the exponential growth of cloud service providers in a dynamic environment is challenging. These authors argue that CSS can be viewed as a complex multi-criteria decision-making (MCDM) issue. In this paper, the authors proposed a CSS approach that considers the QoS fluctuations and user requirements. They adopt the concept of entropy and cross-entropy in a hesitant fuzzy set to rank the services of each class. In addition, they also leverage the grey wolf-based composition algorithm GWC to select the best compositions. According to these authors, the proposed approach is very promising in terms of the computation time and the degree of satisfaction of global constraints. More empirical studies are required.

The third paper is 'Application of automatic fingerprint identification algorithm in criminal investigation', by Xiangyang Wang. The author argues that the error of fingerprint detail feature extraction is high, and the effect of edge recognition is poor in practical application of traditional fingerprint identification algorithms. To overcome this, the author proposes a fingerprint automatic identification algorithm in criminal investigation. This involves pre-process the collected fingerprint image to obtain the size of fingerprint effective area and fingerprint image grey level. Based on Gabor filter, the balanced and normalised fingerprint image is segmented and enhanced by filtering. Lastly, feature extraction, classification and detail matching are carried out for the enhanced fingerprint. According to the author, experimental results show that the error value of the algorithm is relatively stable, the edge recognition effect is good, and the effective information loss rate is low. The author also points out that identification efficiency is low and future work must address this.

The fourth paper is 'The additional testsuite framework: facilitating software testing and test management', by Panagiotis Sotiropoulos and Costas Vassilakis. This paper presents the additional testsuite framework, a novel test suite management approach, which provides structures and instrumentation for the creation, maintenance, evolution and use of test suites for software programs. According to these authors, the tests can be maintained in a centralised repository, and are developed and maintained independently of specific versions of the associated software. Through the use of annotations, tests are categorised and distributed to the desired versions of the software. They suggested that framework also supports test-based development, dynamic/selective program builds, feature-based builds, testing in different environments and source code analysis. The additional testsuite framework concept has been implemented and extensively evaluated, with the test cases notably including the JBoss EAP CE and OpenLiberty servers. More empirical studies are needed to verify its effectiveness.