
Editorial

Lorna Uden

School of Computing,
Faculty of Computing and Digital Technologies,
Staffordshire University,
Mellor Building, College Road, Stoke-on-Trent, ST4-2DE, UK
Email: L.uden@staffs.ac.uk

Welcome to V 16 N 4 issue of *IJWET*. This issue consists of three papers. The first paper is 'A P2P framework for modular disjunctive knowledge bases with negation and constraints and its applications to the semantic web' by Anastasia Analyti. The author of this paper presents a P2P framework based on asynchronous messaging for collaborative reasoning over modular disjunctive knowledge-bases with weak negation, strong negation and constraints. The framework uses asynchronous polynomial time P2P algorithms based on messaging, to collect from the distributed knowledge bases only the part that is needed for query answering. This includes the parts that are relevant to the query and the parts that are needed to derive inconsistency. The author uses four messages *ask pred*, *tell pred*, *ask KB*, and *tell KB message* for query answering.

To support asynchronous messaging several caches are used. When the relevant to the query disjunctive logic program is computed, this is evaluated through answer set programming and for this purpose the DLV system is used. This process is done in polynomial time with respect to the size of the modular knowledge-base. Several applications of the framework were presented including restricted modular ERDF ontologies, SPARQL 1.1 seen as a rule language, the maximal weak model semantics, the minimal weak model semantics, multi-context reasoning, the contextually closed semantics, and taxonomy-based sources connected by articulations. Several complexity results are provided.

The second paper is 'Dynamic composition of services: an approach driven by the user's intention and context', by Abdelmajid Daosabah, Hatim Guermah and Mahmoud Nassar. According to these authors, the adoption of service-oriented architectures (SOA) and web services (WSs) led to the design and development of web applications that can be created by composing different services, possibly provided by different administrations domains. Thus, the automated composition of WSs or the process of forming new WSs with higher benefits is one of the biggest challenges facing the semantic web today.

This paper describes an approach for service composition guided by the context and the intention of the user by designing an intentional contextual metamodel that will be transformed into an OWL model using Object Management Group (OMG) standards, which is used to map the WS composition problem into AI planning problems. According to these authors, they were able to implement CISCA service composition architecture to reduce the complexity of the planning problem generated through a method of modelling the WS composition as a planning problem, to speed up the planning process independently of any domain planners.

The third paper is 'Fault tolerance in web systems: a systematic mapping study', by Dárlinton Barbosa Feres Carvalho, Sofia Larissa da Costa Paiva, Franciane Pereira Gonçalves and Fábio Corrêa. These authors argue that handling unexpected situations in web systems during software execution is the responsibility of developers. This is challenging because of the vast diversity. Handling unexpected situations in web systems, such as failures due to service unavailability or even compatibility issues regarding new versions of system components, requires implementing suitable mechanisms to deal with them. Web systems must gracefully recover from occurrences of faults, even if recurring. Thus, it is necessary to study and define fault handling standards suitable to web-centric system architectures.

The authors of this paper investigate the practices regarding fault tolerance support in web systems published in the literature. They conducted a systematic mapping study by observing patterns in treating faults, highlighting published fault tolerance articles that tackle specific problem domains more than comprehensive solutions. The analysis follows the failure-treatment-efficiency trinomial, providing descriptions of solutions suitable to particular contexts, besides fostering research of alternative solutions. It also reveals the lack of publications detailing fault-tolerance treatments, conceptual frameworks, and middleware to support fault handling in web systems properly.