Editorial

E-Service Intelligence

Service Science is an emergent interdisciplinary field aiming at the study of complex systems comprising humans, organizations and technologies engaged in value-added interactive processes. Electronic services, also known as e-services, involve provision of services using digital technologies. Several application areas of e-services have emerged during the last decade: e-business, e-commerce, e-government, e-science, e-learning, and e-health. The next paradigm shift in the digital era proposes the application of state-of-the-art intelligent digital technologies for increasing the various qualities of e-services, like adaptation, personalization, trust, and decision support.

The articles of this special issue address a highly relevant group of topics for the advancement of the field of e-service intelligence: (i) trust, reputation, and expertise modeling in e-services; (ii) intelligence in e-learning; and (iii) Earth observation and collaborative information processing e-services.

The following three papers show how explicit modeling and evaluation of trust, reputation, and expertise can increase credibility of e-services.

E-services for provisioning of human recommendations are usually based on social network environments. The article "Context-based Global Expertise in Recommendation Systems" by Vincenza Carchiolo, Alessandro Longheu, Michele Malgeri, and Giuseppe Mangioni introduces a model and method for context-based assessment of people expertise in a social network. Their model is experimentally evaluated and validated on the Epinions[1] data set.

The blogosphere is a rich and interactive virtual community environment maintained by bloggers that allows tracking of interconnected comments, events, and opinions. The article "BREM: A Distributed Blogger Reputation Evaluation Model Based on Opinion Analysis" by Yu Weng, Changjun Hu, and Xuechun Zhang proposes a new model for blogger reputation evaluation in distributed environments by mining the opinion relations between bloggers.

Intelligence of e-services can be enhanced by employing rule-based reasoning processes wrapped as software agents. The article "Trusted Reasoning Services for Semantic Web Agents" by Kalliopi Kravari, Efstratios Kontopoulos, and Nick Bassiliades presents the EMERALD multi-agent framework that integrates various trusted reasoning services via software agents' interoperability.

The next two papers address the use of intelligent software technologies for enhancing e-learning services.

The article "A Software System for Viewing and Querying Automatically Generated Topic Maps in the E-Learning Domain" by Liana Stanescu, Gabriel Mihai, Dumitru Burdescu, Marius Brezovan, and Cosmin Stoica Spahiu shows how Topic Maps allow students to semantically browse and query learning resources in a "subject-centric" e-learning system.

Adaptation and personalization are a recent trend for enhancing intelligence of e-learning services. The article "Accommodating Learning Styles in an Adaptive Educational System" by Elvira Popescu, Costin Badica, and Lucian Moraret proposes an innovative learning-style based educational system called WELSA.

The last two papers address specific problems of e-service intelligence in the areas of e-science and decision support in complex situations.

Grid infrastructures have a lot of potential for enhancing Earth observation services. The article "Earth Observation Data Processing in Distributed Systems" by Dana Petcu, Silviu Panica, Marian Neagu, Marc Frincu, Daniela Zaharie, Radu Ciorba, and Adrian Dinis introduces a grid-enabled service-oriented distributed architecture, as well as its proof of concept implementation as a training platform at the West University of Timisoara, Romania.

Decision support in complex applications like crisis management requires efficient collaborative processing of large quantities of heterogeneous information. The article "Dynamic Process Integration Framework: Toward Efficient Information Processing in Complex Distributed Systems" by Gregor Pavlin, Michiel Kamermans, and Mihnea Scafes introduces a flexible service oriented architecture that supports dynamic creation of distributed workflows for collaborative reasoning in knowledge rich domains with minimal ontological commitments.

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Costin Badica
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[1] http://www.epinion.com