This special issue originates from the 5th International Conference on Knowledge Science, Engineering and Management (KSEM 2011), which was held in Irvine, CA, USA, during December 12–14, 2011. KSEM is an interdisciplinary conference that brings together researchers from the broad areas of knowledge science, knowledge engineering and knowledge management. The conference attracts numerous high-quality, state-of-the-art research papers from all over the world.

With the rapidly increasing amount of data, there is the pressing need of effective knowledge modeling tools. These tools are critical for extracting useful knowledge and providing decision aid automatically in various application domains. There are 5 papers selected from the conference and are extended into full versions for this special issue. The selected papers represent innovative work to address such challenges in different research domains, such as entity retrieval, resource recommendation and matchmaking, expert finding, and software inconsistency discovery.

The problem of finding the relation between entities is studied in the paper “A Relation Pattern-Driven Probability Model for Related Entity Retrieval”. They propose a probability model for related entity retrieval aiming at finding relation patterns and estimating the probability of occurrence of relation between two entities. The paper “Context-Aware Expert Finding in Tag based Knowledge Sharing Communities” proposes a probabilistic framework of authority ranking for finding experts in a Q&A system by exploiting context information of user-generated tags. The development of ontology to improve the performance of emergency disposal procedures is presented in the paper “Domain Ontology Design and Reasoning for Resource Matchmaking in Emergency Response Systems”. A domain ontology
is formally defined and implemented into a prototype system that has been experimented in an application of highway network under severe weather conditions.

Collaborative tagging is the topic of the paper entitled “A Resource Recommendation Method Based on User Taste Diffusion Model in Folksonomies”, which proposes a solution to recommend appropriate resources to the right users based on a user taste diffusion relating user-resource-tag in folksonomies. In the software engineering domain, the paper “A Blame-Based Approach to Generating Proposals for Handling Inconsistency in Software Requirements” aims at discovering and resolving inconsistencies in software requirements with a logic-based approach.

Our sincere gratitude goes to the authors of the submitted papers and the KSEM organizers and reviewers, who actively collaborated in reaching the high quality selection of papers in this issue. In addition, we would like to thank the Editor-in-Chief, Dr. W.B. Lee, for his help and strong support on this special issue!

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