KEPT 2011: THE THIRD INTERNATIONAL CONFERENCE ON KNOWLEDGE ENGINEERING, PRINCIPLES AND TECHNIQUES

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1. Introduction

The Faculty of Mathematics and Computer Science of the Babeş-Bolyai University in Cluj- Napoca is organizing the Third International Conference on Knowledge Engineering Principles and Techniques (KEPT 2011), during July 4–6, 2011. We are happy that our initial wish on Kept Conference "... to be a permanent series of events on theoretical foundations and real-world applications of knowledge engineering" [1] is, at least until today, a reality.

This conference, organized on the platform of Knowledge Engineering, is a forum for intellectual, academic, scientific and industrial debate to promote research and knowledge in this key area, and to facilitate interdisciplinary and multidisciplinary approaches, more and more necessary and useful today. Knowledge engineering refers to the building, maintaining, and development of knowledge-based systems. It has a great deal in common with software engineering, and is related to many computer science domains such as artificial intelligence, databases, data mining, expert systems, decision support systems and geographic information systems. Knowledge engineering is also related to mathematical logic, as well as strongly involved in cognitive science and socio-cognitive engineering where the knowledge is produced by socio-cognitive aggregates (mainly humans) and is structured according to our understanding of how human reasoning and logic works.

Since the mid-1980s, knowledge engineers have developed a number of principles, methods and tools that have considerably improved the process of knowledge acquisition and ordering. Some of the key issues include: there are different types of knowledge, and the right approach and technique should be used for the knowledge under study; there are different types of experts and expertise, and methods should be chosen appropriately; there are different ways of representing knowledge, which can aid knowledge acquisition, validation and re-use; there are different ways of using knowledge, and the acquisition process can be goal-oriented; there are structured methods to increase the acquisition efficiency.

2. The content of Kept2011

The Submissions were grouped into four General Tracks in order to simplify the review process and Conference presentations. These sections are described downwards.

2.1. **Knowledge in Computational Linguistics.** The huge quantity of unstructured text documents stored on the web represents issues of the very hot researches in Computational Linguistics (or Natural Language Processing, NLP). As a part of Knowledge Engineering, Knowledge in Computational Linguistics includes the studies in Linguistic tools in Information retrieval and Information Extraction, in Text mining, Text entailment and Text summarization. The study of Discourse and Dialogue, of Machine learning for natural languages and of Linguistic components of information systems are also some very active fields in the present research. All these aspects of theoretical and application-oriented subjects related to NLP are subjects of debates in our section of Knowledge in Computational Linguistics.

2.2. **Knowledge Processing and Discovery (KPD).** The purpose of this track is to promote research in AI and scientific exchange among AI researchers, practitioners, scientists, and engineers in related disciplines. Topics include but are not limited to the following: Agent-based and multiagent systems; Cognitive modeling and human interaction; Commonsense reasoning; Computer vision; Computational Game Theory; Constraint satisfaction, search, and optimization; Game playing and interactive entertainment; Information retrieval, integration, and extraction; Knowledge acquisition and ontologies; Knowledge representation and reasoning; Learning models; Machine learning and data mining; Modelbased systems; Multidisciplinary AI; Natural computing: evolutionary computing, neural computing, DNA and membrane computing, etc.; Natural language processing; Planning and scheduling; Probabilistic reasoning; Robotics; Web and information systems.

2.3. **Knowledge in Software Engineering (SE).** The main theme of this track is the interplay between software engineering and knowledge engineering, answering questions like: how knowledge engineering methods can be applied to software, knowledge-based systems, software and knowledge-ware maintenance and evolution, applications of knowledge engineering in various domains of interest.

2.4. **Knowledge in Distributed Computing (KDC).** For distributed computing and distributed systems, topics of interest include, but are not limited to, the following: System Architectures for Parallel Computing (including: Cluster Computing, Grid and Cloud Computing); Distributed Computing

(including: Cooperative and Collaborative Computing, Peer-to-peer Computing, Mobile and Ubiquitous Computing, Web Services and Internet Computing); Distributed Systems (including Distributed Systems Methodology and Networking, Software Agents and Multi-agent Systems, Distributed Software Components); Development of Basic Support Components (including Operating Systems for Distributed Systems, Middleware, Algorithms, Models and Formal Verification); Security in Parallel and Distributed Systems.

3. Invited lectures and accepted papers of Kept2011

This third Kept conference is honored by leading class keynote speakers, to present their invited lectures in two plenary sessions. Main topics include (but are not limited to): software engineering methods and practices, requirements engineering, software design, software reuse, object-oriented systems, formal specification, software verification and validation, reverse engineering in software design, model-driven architecture, model transformation, test-driven development, impact of CASE tools on software development life cycle, knowledge engineering methods and practices, ontology-based software development, ontology-driven information systems. This year, the lectures are presented by: Assoc.Prof. Diana Inkpen (University of Ottawa, Canada), Prof. Rada Mihalcea (University of North Texas, USA), Senior Lect. Constantin Orasan (University of Wolverhampton, UK), Prof. Chin Wei Ngan (University of Singapore), Prof. Attila Adamko (University of Debrecen), Prof. Gheorghe Grigoraş and Prof. Dorel Lucanu (Al. I. Cuza University of Iaşi).

The organisation of this conference reflects the following major areas of concern: Natural Language Processing, Knowledge Processing and Discovery, Software Engineering, and Knowledge in Distributed Computing. The 41 accepted papers (from 84 submitted) were organized in these four sections (7 to NLP, 13 to KPD, 13 to SE, and 7 to KDC). The participants submitted their works as peer-reviewed extended abstracts of 4–6 pages each, and full papers of 10–12 pages each. These full papers will be further considered for publishing in the postconference Proceedings, based on another peer-to-peer review. The extended abstracts for the two former sections are printed in this volume, 2/2011, of Studia Universitatis Babeş-Bolyai, Informatica journal. The extended abstracts for the two latter sections are printed in volume 3/2011, of Studia Universitatis Babeş-Bolyai, Informatica journal.

4. Conclusions

We hope the Third International Conference on Knowledge Engineering Principles and Techniques (KEPT 2011) will be an exciting and useful experience and exchange of knowledge for our department. The possibility to

communicate our most recent studies, and to compare with the results of others colleagues, the emulation of new ideas and research, all these mean a great gain of experience in our professional life. We hope that the next edition of KEPT (in 2013) will be even more successful and more enthusiastic than this one.

We are taking the feedback of this Conference to improve the next editions, to atract more participants and to involve more personalities in the reviewing process.

References

[1] Doina Tătar, Horia F. Pop, Militon Frenţiu, Dumitru Dumitrescu, The First International Conference on Knowledge Engineering Principles and Techniques, Studia Universitatis Babeş-Bolyai Informatica, 52 (2), 2011, 3–10.

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