

**KEPT2013: THE FOURTH INTERNATIONAL CONFERENCE
ON KNOWLEDGE ENGINEERING, PRINCIPLES AND
TECHNIQUES**

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1. INTRODUCTION

The Faculty of Mathematics and Computer Science of the Babeș-Bolyai University in Cluj-Napoca is organizing the Fourth International Conference on Knowledge Engineering Principles and Techniques (KEPT2013), during July 5–7, 2013. 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 KEPT2013

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

2.1. Knowledge in Computational Linguistics (KCL). 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 (KSE). 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 KEPT2013

This fourth KEPT conference is honored by leading class keynote speakers, to present their invited lectures in two plenary sessions. This year, the lectures are presented by: Prof. Diana Inkpen (University of Ottawa, Canada), with a lecture on “Text Representation and General Topic Annotation based on Latent Dirichlet Allocation”; Prof. Prof. Attila Adamkó (University of Debrecen, Hungary), with a lecture on “Different approaches to MDWE: bridging the gap”; Prof. Zoltán Horváth (Eötvös Loránd University, Budapest, Hungary), with a lecture on “Workflow Description in Cyber-Physical Systems”. 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 18 accepted papers (from 29 submitted) were organized in these four sections (2 to NLP, 8 to KPD, 3 to SE, and 5 to KDC). The participants submitted their works as peer-reviewed papers of 10–12 pages each. These full papers are published in this and the next issues, 2/2013 and 3/2013, of *Studia Universitatis Babeş-Bolyai, Informatica* journal.

4. SATELLITE WORKSHOPS

Associated to the fourth KEPT conference, we organized three satellite workshops. Two of these workshops were organized in collaboration with partner companies, offering the opportunity to exchange ideas between academia and industry. The workshop on “Mobile development”, organized in cooperation with the company Skobbler, took place on Friday, July 5, and the workshop on “Testing methodologies”, organized in cooperation with the company Endava, took place on Saturday, July 6. As well, for the first time, we organized a satellite doctoral workshop, as an excellent opportunity for doctoral students to share their progress on doctoral work, exchange ideas, benefit from expert feed-back and defend their research reports.

5. CONCLUSIONS

We hope the Fourth International Conference on Knowledge Engineering Principles and Techniques (KEPT 2013) to 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 other 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 2015) 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 attract more participants and to involve more personalities in the reviewing process.

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