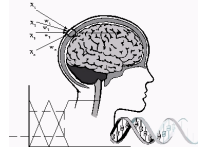




International

Innovation in Knowledge Based and Intelligent
Engineering Systems



INVITED SESSION SUMMARY

Title of Session:

Interactive Linguistics for Agent and Multiagent Systems

Chair: Radosław Katarzyniak, Prof., Wrocław University of Science and Technology, Wrocław, Poland

Co-chair: Velina Slavova, Prof., New Bulgarian University, Sofia, Bulgaria

Co-chair: Yasuhiro Katagiri, Prof., Future University, Hakodate, Japan

Co-chair: André Włodarczyk, Prof. Em., formerly research director at Sorbonne University, Paris
France

Details of Session:

Interactive Linguistics

Interactive Linguistics is an interdisciplinary field of modern science of natural languages, involving the scientific cooperation of information engineers, data scientists, linguists (both computationally and cognitively oriented), logicians and psycho-neurologists. The models and methods of Interactive Linguistics are aimed at describing a number of semantic fields of natural language processing, using computational approaches and methods elaborated, in particular, in the fields of knowledge engineering and machine learning.

Interactive Linguistics has emerged from an original line of research into language studies elaborated within the framework of CELTA (Centre de Linguistique Théorique et Appliquée) at Sorbonne University (Paris) at the beginning of the 21st century. It has been founded on a broad spectrum of sub-theories and theoretical concepts covering multiple aspects and steps of natural language processing, such as:

- semantic and episodic memory development, management and usage,
- application of Distributed Grammar principles (meta-, ortho- and para-informative levels of conceptualisation) to language processing,
- modelling of the phenomenon of attention centering in natural language production and interpretation,
- grounding surface-oriented linguistic representations in deep cognitive structures, knowledge bases, and processes related to natural language processing

In a broader perspective, theories and methods of Interactive Linguistics can be successfully applied to the study of other types of communication systems such as visual and haptic systems.

The methods and tools developed within the framework of Interactive Linguistics provide a solid theoretical background for updating research carried out in technical approaches to the study of agents and multiagent systems. Namely, it supports advanced R&D work on the design and implementation of efficient semantic communication processes in modern socio-technical systems where the concept of agency plays a fundamental role. This fact relates naturally Interactive Linguistics to such phenomena as *Internet of Things* (IoT) and *Internet of Everything* (IoE) which will define knowledge management models in the next decade.

The Scope of the Session

This special session collects original works in which authors discuss multiple aspects of Interactive Linguistics (theoretical and practical), relevant to the field of artificial agent and multi-agent systems, both virtual as well as embedded. **Possible research and development issues, relevant to the session, should contribute to answering the following general questions:**

- What semantic languages are needed to ensure effective and pragmatically complete interaction between artificial agents and humans in the next generation of socio-technical systems?
- In what way the semantic content should be collected, stored, and retrieved by artificial agents to make the content representable in natural and semi-natural languages?
- In what way the human-comprehensible meaning could be autonomously developed and bound to particular languages of semantic communication by societies of artificial agents to ensure intelligent interaction between machines and humans?
- How to recognize automatically graphical signs and achieve better image recognition techniques?

List of Relevant Topics:

- computationally – oriented theories and models of natural language processing,
 - models and architectures of artificial agents capable of semantic communication,
 - ontologies, commitments and protocols in semantic communication,
 - approaches to extraction of linguistic representations from knowledge bases in embodied artificial agents,
 - symbol grounding and anchoring in intelligent interaction,
 - graphical representations and deep image recognition,
 - Visual and haptic systems.
- etc.

The session organizers cordially invite potential authors to submit papers on the above and related topics.

Important deadlines

- Paper submission: 30 April 2020,
- Notification of acceptance: 15 May 2020
- Final paper publication files to be received by: 29 May 2020

Rules for early registration reduced fees:

<http://kes2020.kesinternational.org/deadlines.php>

Authors who submit and present their work will have their work published and indexed internationally by Elsevier's Procedia Computer Science (<http://www.journals.elsevier.com/procedia-computerscience/>) .

Email & Contact Details:

Radosław Katarzyniak: radoslaw.katarzyniak@pwr.edu.pl – contact address

Velina Slavova: velinasla@gmail.com

Yasuhiro Katagiri: katagiri@fun.ac.jp

André Włodarczyk: wlodarczyk.andre@gmail.com