



International

Innovation in Knowledge Based and Intelligent
Engineering Systems



INVITED SESSION SUMMARY

Title of Session:

Interactive Linguistics for Agent and Multi-agent Systems

Chair:

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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, in particular elaborated in the fields of knowledge engineering and machine learning.

Interactive Linguistics has emerged from an original line of research into language studies carried out within the framework of CELTA (Centre de Linguistique Théorique et Appliquée) at Sorbonne University (Paris) at the beginning of the 21st century (for more details on CELTA see its historic website and the related research contribution repository: <http://celta.paris-sorbonne.fr/indexEn.html>).

Interactive Linguistic 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 centering attention 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, the theories and methods of Interactive Linguistics can be successfully applied to the study of other types of communication systems e.g. visual and haptic ones.

Additionally the methods and tools developed within the framework of Interactive Linguistics provide a solid background for substantial update of research carried out in the technically-oriented field of agents and multi-agent systems, as well as Self-Explainable AI. In particular, they strongly support advanced R&D work on the design and implementation of efficient semantic communication processes in modern socio-technical systems where the concept of self-explainable agency plays and will play a crucial role. This fact naturally relates Interactive Linguistics with such concepts as *Internet of Things* (IoT) and *Internet of Everything* (IoE) which are essential for today's and future knowledge management paradigms.

The Scope of the Session

This special session will collect 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 communication languages and protocols 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, retrieved and “mentally”-captured 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 and support intelligent interaction between humans and machines?

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 including models of natural language dialogue,
 - models of extraction of linguistic representations,
 - combining symbol grounding and anchoring with intelligent interaction,
 - Visual and haptic systems.
- etc.*

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

Visit <http://kes2022.kesinternational.org/prose.php> to submit and track your paper using PROSE. Papers are required in PDF format; however, each must be accompanied by the source text, either in Latex or MS Word.

Important deadlines

- Paper submission: **15 May 2022**
- Notification of acceptance: **22 May 2022**
- Final paper publication files to be received by: **03 June 2022**

Rules for registration:

<http://kes2022.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*:

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