KI — GERMAN JOURNAL ON ARTIFICIAL INTELLIGENCE

SPECIAL ISSUE ON

SEMANTIC INTERPRETATION OF MULTI-MODAL HUMAN-BEHAVIOUR DATA
— MAKING SENSE OF EVENTS | ACTIVITIES | PROCESSES

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ABOUT THE JOURNAL

The KI —Künstliche Intelligenz / Artificial Intelligence— journal presents fundamentals and tools, their use and adaptation for scientific purposes, and applications that are implemented using AI methods. The journal provides readers with the latest developments on all relevant aspects of artificial intelligence.

KI is the official journal of the division for artificial intelligence within the German Informatics Society — the "Gesellschaft für Informatik e.V." (GI)—   with contributions from the entire field of artificial intelligence. KI is published by Springer, and indexed by all major indexing services including SCOPUS, INSPEC, Google Scholar, Academic OneFile, DBLP, OCLC, SCImago, Summon by ProQuest. Information about recent articles is available at: http://link.springer.com/journal/13218

SCOPE OF THE SPECIAL ISSUE

The special issue focusses on and emphasises general methods and tools for **activity and event-based semantic interpretation** of multi-modal sensory data relevant to a range of application domains and problem contexts where interpreting human behaviour is central. The overall motivation and driving theme of the special issue pertains to **AI-based methods and tools** that may serve a foundational purpose toward the high-level semantic interpretation of **large-scale, dynamic, multi-modal sensory data, or data streams.**

Proposed foundational methods will, for instance, present the development of human-centred technologies and cognitive interaction systems aimed at assistance and empowerment, e.g. in everyday life and professional problem solving and creativity.

Multi-modal event & activity interpretation.

The multi-modality that is alluded to in the context of this special issue stems from an inherent synergistic value in the integrated processing and interpretation of a range of data sources that are common in the context of cognitive interaction systems, computational cognition, and human-computer interaction scenarios. Data-sources that may be envisaged include, but are not limited to, one or more of the following:

- **VISUO-SPATIAL IMAGERY., e.g.:**
    - image, video, video & depth (RGB-D), point-clouds
    - geospatial satellite imagery, remote sensing data, crowd-sourced data, survey data

- **MOVEMENT AND INTERACTION DATA., e.g.:**
    - indoor or outdoor settings pertaining to motion of people / things at arbitrary spatial and temporal scales
    - sensory-motor data about interaction of people with things (e.g., in activities of everyday living)

- **NEUROPHYSIOLOGICAL AND OTHER HUMAN BEHAVIOUR DATA., e.g.:**
    - eye-tracking and related human behaviour data
    - FMRI, EEG data occurring in medical computing, brain-computer interfaces etc

A key emphasis in multi-modality is on AI-based integrated "perceptual sensemaking" with mixed symbolic, qualitative, quantitative data aimed at empirical or evidence-based studies, high-level analytics, knowledge discovery etc. The applied goals or end-results may be driven by assisting humans in decision-making, innovation, planning, design, control, automation etc.

Foundational Methods.

This call particularly emphasises systematically formalised integrative AI methods & tools (e.g., combining reasoning and learning) that enable declarative modelling, reasoning and query answering, relational learning, embodied grounding and simulation etc. Broadly, the role of declarative abstraction, knowledge representation & reasoning, and neural-symbolic learning & inference from multi-modal sensory data is highly welcome.

Some key topics of interest include:

- scene, event, and activity interpretation
- event stream reasoning
- commonsense scene perception
- declarative spatial reasoning
- cognitive vision, semantic Q/A with video
- integration of relational logic and statistical learning
- deep visuo-spatial semantics
- reasoning about space, actions, and change
- relational learning and knowledge discovery
- visuo-spatial computing
- embodied visuo-auditory cognition
- computational models of narrative
- computational cognitive systems
- cognition and natural interaction
- assistive technologies

We welcome additional ideas and suggestions for topics as the above list is not meant to be conclusive or exhaustive. If in doubt, send us an email.

DATES AND PUBLICATION SCHEDULE

The special issue is scheduled for publication as Issue 4 / 2017; this requires supports of authors to meet the following indicative deadlines (also refer full submission guidelines and procedure below):

— Expressions of interest	November 7 2016
— Submission of extended abstracts	November 30 2016
— Full articles due for peer-review	January 30 2017
— Final Camera Ready for accepted papers submitted to Springer system	latest by July 30 2017

SUBMISSION GUIDELINES

A. PUBLICATION FORMAT

We welcome publications for peer-review in the following categories / formats:

- Technical Contribution (6-10 pages)
- Report of Research Project (4-6 pages)
- Dissertation Summary (2-4 pages)

All page counts include images and references.

B. PUBLICATION STAGES

The following publication stages are applicable:

1. EXPRESSION OF INTEREST (Recommended): *tentative title of submission, and publication category*
2. EXTENDED ABSTRACT (Recommended): *max two page overview of your submission with title, author names, abstract / summary, and select references (for dissertation summaries, only a short abstract and title needed)*

3. SUBMISSION FOR REVIEW: *full paper as per the chosen category for peer-review*
4. FINAL CAMERA READY: *for accepted articles (subject to proposed revisions etc)*

Stages 1 and 2 (**Expression of interest and Extended Abstract***):*
Please submit by email to all guest editors; contact details listed below. Extended abstract should be submitted as a PDF in a single column format.

Stages 3 and 4 (**Review Version and Final Camera Ready Submissions***):*
Please submit as per the formatting and submission guidelines of the KI Journal; details are available at:

— Main link: http://www.springer.com/computer/ai/journal/13218

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