

CoSLI 2011

Computational Models of Spatial Language Interpretation and Generation

– Preface –

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Competence in spatial language modeling is a cardinal issue in disciplines including Cognitive Psychology, Computational Linguistics, and Computer Science. Within Cognitive Psychology, the relation of spatial language to models of spatial representation and reasoning is considered essential to the development of more complete models of psycholinguistic and cognitive linguistic theories. Meanwhile, within Computer Science and Computational Linguistics and Engineering, the development of a wide class of so-called situated systems such as robotics, virtual characters, and Geographic Information Systems is heavily dependent on the existence of adequate models of spatial language use.

Achieving competence in spatial language requires that appropriate meanings be assigned to spatial terms used in language, such as location, motion, orientation, perspective, projective, topological, distance, or path descriptive markers. The computational modeling of such spatial language meanings in turn supports the interpretation of an intended spatial meaning as well as the generation of adequate linguistic expressions in certain situations and contexts. While early computational models for spatial language interpretation and generation primarily focused on a geometric understanding of spatial terms, it is now widely recognized that spatial term meaning depends on functional and pragmatic features in many ways. Competent models of spatial language interpretation and generation must thus draw on complex models of situated meaning by developing heterogeneous approaches with qualitative and quantitative models and by combining geometric, functional, pragmatic, and cognitive features in multi-modal contexts and applications.

Drawing together theories and results in spatial language modeling is a critical research topic for a range of research disciplines. These includes not only Psychology where computational theories can be used to bind experimental results and models, but also disciplines from the wider community, including: Artificial Intelligence, Computational Linguistics, Human-Robot Interaction, Ontology Engineering, the Semantic Web, and Geographic Information Systems.

The main objective of the CoSLI-2 workshop is to foster computational formalisms and approaches for interpreting or generating spatial language that take into account cognitive, functional, or embodiment criteria in modeling. In particular, this years workshop theme is “*Function in Spatial Language: From evidence to execution*”, and we welcome in particular any contributions which aim to address the issues of modeling function or pragmatic features in spatial language interpretation or generation. More generally, the workshop also welcomes contributions that address symbolic and embodied spatial language interpretation and generation. This topic remains an ongoing issue in both natural language processing and cognitive science, and novel work is encouraged. Such work includes both formal and empirical models of spatial language templates and linguistic calculi, corpus-based and statistical methods, combinations of symbolic and sub-symbolic representations, and aspects of sensory-motor and multi-modal information. Contributions to spatial language interpretation and generation that integrate results from empirical and psychological frameworks for spatial language and that can improve and support situated natural language systems are also particularly welcomed.

Workshop Organization

Co-Chairs

Joana Hois	University of Bremen, Germany
Robert J. Ross	Artificial Intelligence Group, Dublin Institute of Technology, Ireland
John D. Kelleher	Artificial Intelligence Group, Dublin Institute of Technology, Ireland
John A. Bateman	English Department and Research Center on Spatial Cognition (SFB/TR8), University of Bremen, Germany

Program Committee

Marios Avraamides	University of Cyprus, Cyprus
Kenny Coventry	Northumbria University, UK
Alexander Klippel	Penn State, USA
Alexander Koller	University of Potsdam, Germany
G�rard Ligozat	University of Paris-Sud, France
Matt Mac Mahon	Google, USA
Amitabha Mukerjee	Indian Institute of Technology Kanpur, India
Philippe Muller	Universit� Paul Sabatier, France
Robert Porzel	University of Bremen, Germany
David Schlangen	University of Potsdam, Germany
Emile van der Zee	University of Lincoln, UK
Joost Zwarts	Universiteit Utrecht, Netherlands

Invited Speaker

Kenny Coventry	Northumbria University, UK
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Acknowledgements

We acknowledge generous financial support from the DFG-funded Research Center on Spatial Cognition (SFB/TR 8) situated at the Universities of Bremen & Freiburg, Germany, and from the Artificial Intelligence Group situated at the Dublin Institute of Technology, Ireland. We would like to thank the PC members for their timely reviewing work, our invited speaker, Kenny Coventry, for delivering the keynote presentation at the workshop, and especially Barbara Landau and Kenny Coventry for contributing to our panel session during the workshop.

We would also like to thank the organizers of the 33rd annual meeting of the Cognitive Science Society for hosting the CoSLI-2 workshop, in particular, Duncan Brumby, Kevin Gluck, Andy Stull, and Nicole Dillon for their support.

July 2011

J. Hois, R. Ross, J. Kelleher, J. Bateman
CoSLI 2011 Program Chair

Workshop Schedule

9:00 - 9:05	Opening
9:05 - 10:00	Invited Talk: Kenny Coventry “Spatial Language and the Dynamics of Meaning”
10:00 - 10:30	Kalyan Moy Gupta, Abraham R. Schneider, Matthew Klenk, Kellen Gillespie, and Justin Karneeb “Representing and Reasoning with Functional Knowledge for Spatial Language Understanding”
10:30 - 11:00	Coffee Break (poster setup)
11:00 - 11:30	Yunhui Wu and Stephan Winter “Interpreting Destination Descriptions in a Cognitive Way”
11:30 - 12:00	Masoud Rouhizadeh, Daniel Bauer, Bob Coyne, Owen Rambow, and Richard Sproat “Collecting Spatial Information for Locations in a Text-to-Scene Conversion System”
12:00 - 13:00	Poster Session
13:00 - 14:00	Break
14:00 - 14:30	Alice Ruggeri, Cristina Battaglino, Gabriele Tiotto, Carlo Geraci, Daniele Radicioni, Alessandro Mazzei, Rossana Damiano, and Leonardo Lesmo “Where should I put my hands? Planning hand location in sign languages”
14:30 - 15:00	James Pustejovsky, Marc Verhagen, Anthony Stefanidis, and Caixia Wang “Geolocating Orientational Descriptions of Landmark Configurations”
15:00 - 15:30	Coffee Break
15:30 - 16:00	Alexander Klippel, Sen Xu, Jinlong Yang, and Rui Li “Spatial Event Language across Geographic Domains”
16:00 - 17:00	Round Table Discussion & Closing