



Spatial Cognition 2008
Conference Program

Welcome to Spatial Cognition 2008,

Spatial Cognition 2008 continues the series of the biennial Spatial Cognition conferences organized by the interdisciplinary Transregional Collaborative Research Center Spatial Cognition: Reasoning, Action, Interaction (SFB/TR 8), which has been established by the Deutsche Forschungsgemeinschaft at the Universities of Bremen and Freiburg in 2003. This time the conference has been organized in collaboration with the Spatial Intelligence and Learning Center (SILC) at Philadelphia and Chicago, to bring together researchers from both centers as well as researchers from other research labs from all over the world.

The conference program of Spatial Cognition 2008 mirrors a wide spectrum of current topics in spatial cognition research, by including contributions from various scientific disciplines related to spatial cognition. The Program Chairs invited three prominent scientists as keynote lecturers: Heinrich H. Bühlhoff, Laura Carlson, and Dedre Gentner. For the technical program, 27 papers have been selected for oral presentation by the Program Chairs, based on the excellent reviews provided by the 73 members of the Program Committee and additional reviewers. More than thirty poster contributions are going to be presented in the Poster Session of the conference. The program also features four tutorials, four workshops, and a doctoral colloquium to provide forums for discussion and exchange of research experience between young scientists. Immediately before the conference, a workshop sponsored by the US National Science Foundation (NSF) was organized by the SILC consortium in cooperation with the SFB/TR 8 at the University of Freiburg. This workshop included lab visits at the Freiburg site of the SFB/TR 8.

Many people have contributed to the scientific and local organization of Spatial Cognition 2008 (some but not all could be listed in this program). On behalf of the Program Chairs and the Local Organization we would like to thank them all.

We thank SICK AG for the generous sponsorship for this conference, ESRI Geoinformatik GmbH for sponsoring the travel grants for PhD students participating at the doctoral colloquium, and Springer Verlag for sponsoring the Best Paper Award.

We thank the Deutsche Forschungsgemeinschaft and the National Science Foundation for the continued support of our research and for encouragement and enhancing our international research cooperations.

Last but not least, we thank you for coming to Freiburg. We hope that you will enjoy attending Spatial Cognition 2008, and we hope that new ideas and new collaborations for future research will evolve from the meetings and discussions in the various conference events.

Monday, Sep 15, 2008

Tutorial T-2 (9:00 – 13:00)

Behavioral Similarity Measures for Spatial Cognition.

By Alexander Klippel (Penn State U, US).

Tutorial T-3 (9:00 – 13:00)

Qualitative Spatial and Temporal Reasoning: Formal Aspects and Cognitive Theories.

By Marco Ragni (U of Freiburg, DE).

*** Coffee Break (10:30 – 11:00)

*** Lunch Break (13:00 – 14:00)

Tutorial T-1 (14:00 – 18:00)

Exploring Spatial Cognition through Sketch Understanding.

By Kenneth D. Forbus (Northwestern U, US).

Industrial Tutorial IT-1 (14:00 – 18:00)

Visualization and Spatial Statistics with ArcGIS.

By Niels Krabisch (ESRI Geoinformatik GmbH, DE),

in collaboration with Gregory KuhnmüncH (U of Freiburg, DE).

Workshop WS-2 (14:00 – 18:00)

Cognitive and Computational Models of Human Spatial Reasoning.

Organized by Marco Ragni (U of Freiburg, DE),

Holger Schultheis (U of Bremen, DE), and

Thomas Barkowsky (U of Bremen, DE).

*** Coffee Break (16:00 – 16:30)

Welcome Reception (19:00)

*** Dinner

Tuesday, Sep 16, 2008

Keynote Lecture (8:30 – 9:30)

Heinrich H. Bülthoff (MPI for Biological Cybernetics, DE).
Virtual reality as a valuable research tool for investigating different aspects of spatial cognition.

Spatial Orientation (9:30 – 10:30)

Marios Avraamides and Stephanie Pantelidou.
Does body orientation matter when reasoning about depicted or described scenes?

Jonathan Kelly and Timothy P. McNamara.
Spatial memory and spatial orientation.

*** Coffee Break

Spatial Navigation (11:00 – 13:00)

Louis-Emmanuel Martinet, Jean-Baptiste Passot, Benjamin Fouque, Jean-Arcady Meyer, and Angelo Arleo.
Map-based spatial navigation: A cortical column model for action planning.

Thomas Reineking, Christian Kohlhagen, and Christoph Zetsche.
Efficient wayfinding in hierarchically regionalized spatial environments.

Laurent Dollé, Mehdi Khamassi, Benoît Girard, Agnès Guillot, and Ricardo Chavarriaga.
Analyzing interactions between navigation strategies using a computational model of action selection.

Lorenz Gerstmayr, Hanspeter Mallot, and Jan Wiener.
A minimalistic model of visually guided obstacle avoidance and path selection behavior.

*** Lunch Break

Spatial Learning (14:30 – 16:00)

Rebecca Hurlbaeus, Kai Basten, Hanspeter A. Mallot, and Jan M. Wiener.
Route learning strategies in a virtual cluttered environment.

Nicholas Giudice and Jerome Tietz.

Learning with virtual verbal displays: Effects of interface fidelity on cognitive map development.

Drew Dara-Abrams.

Cognitive surveying: A framework for mobile data collection, analysis, and visualization of spatial knowledge and navigation practices.

*** Coffee Break

Maps & Modalities (16:30 – 18:00)

Kai-Florian Richter, Denise Peters, Gregory Kuhnmünch, and Falko Schmid.

What do focus maps focus on?

Lynn S. Liben, Lauren J. Myers, and Kim A. Kastens.

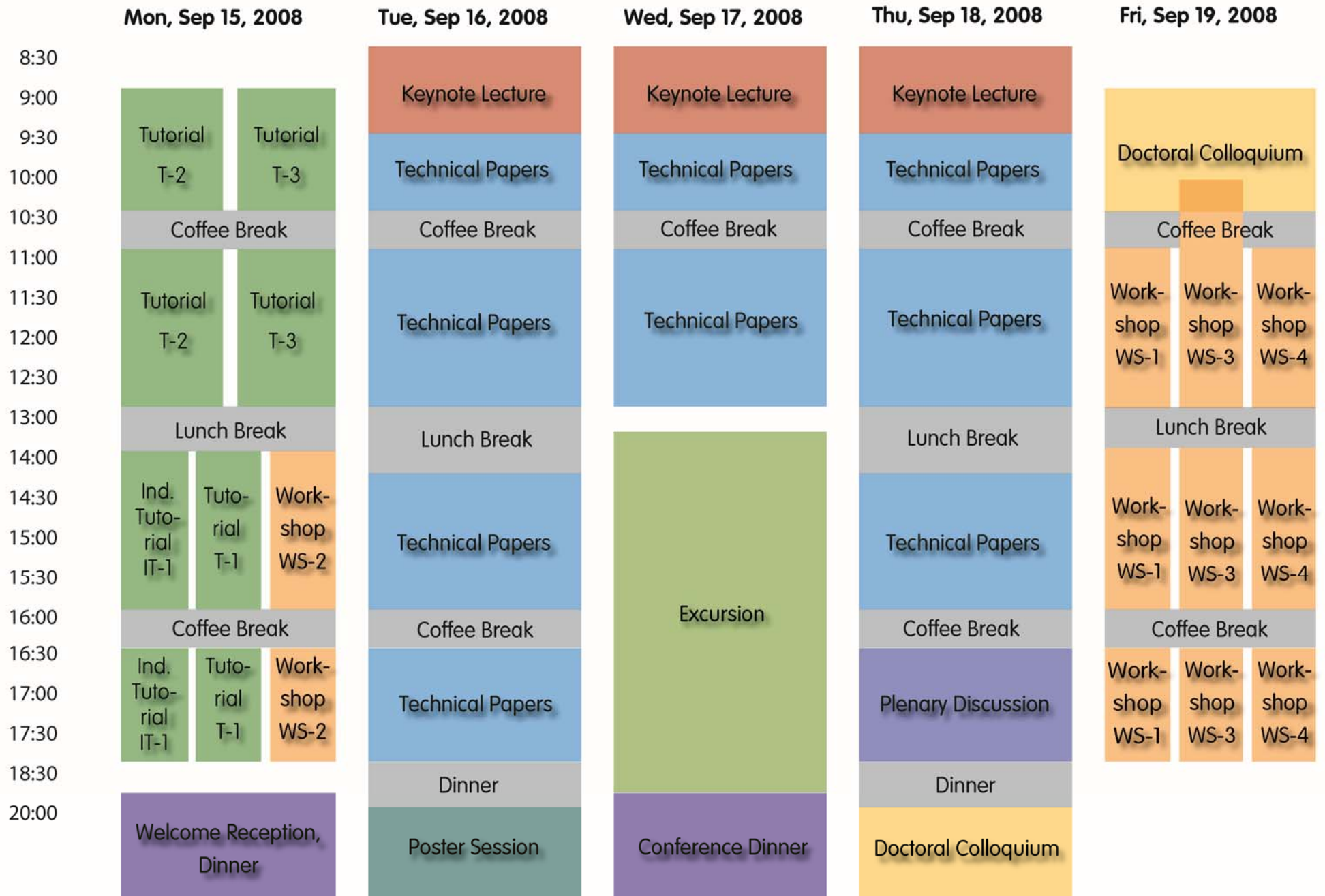
Locating oneself on a map in relation to person qualities and map characteristics.

Madeleine Keehner.

Conflicting cues from vision and touch can impair spatial task performance: Speculations on the role of spatial ability in reconciling frames of reference.

*** Dinner

Poster Session (20:00 – 21:30)



Wednesday, Sep 17, 2008

Keynote Lecture (8:30 – 9:30)

Laura Carlson (U of Notre Dame, US).

On the “whats” and “hows” of “where”: The role of salience in spatial descriptions.

Spatial Communication (9:30 – 10:30)

Kim Kastens, Lynn S. Liben, and Shruti Agrawal.

Epistemic actions in science education.

Michael Barclay and Antony Galton.

An influence model for reference object selection in spatially locative phrases.

* * * Coffee Break

Spatial Language (11:00 – 13:00)

Robert Ross.

Tiered models of spatial language interpretation.

Juliana Goschler, Elena Andonova, and Robert Ross.

Perspective use and perspective shift in spatial dialogue.

Joana Hois and Oliver Kutz.

Natural language meets spatial calculi.

Kate Lockwood, Andrew Lovett, and Kenneth Forbus.

Automatic classification of containment and support spatial relations in English and Dutch.

Excursion & Conference Dinner (13:30)

Excursion & Conference Dinner

Thursday, Sep 18, 2008

Keynote Lecture (8:30 – 9:30)

Dedre Gentner (Northwestern U, US).

Learning about space.

Similarity & Abstraction (9:30 – 10:30)

Konstantinos Nedas and Max Egenhofer.

Integral vs. separable attributes in spatial similarity assessments.

Lutz Frommberger and Diedrich Wolter.

Spatial abstraction: Aspectualization, coarsening, and conceptual classification.

*** Coffee Break

Concepts & Reference Frames (11:00 – 13:00)

Martin Raubal.

Representing concepts in time.

Tobias Meilinger.

The network of reference frames theory: A synthesis of graphs and cognitive maps.

Peter Kiefer.

Spatially constrained grammars for mobile intention recognition.

Andrew Lovett, Kate Lockwood, and Kenneth Forbus.

Modeling cross-cultural performance on the visual oddity task.

*** Lunch Break

Spatial Modelling & Spatial Reasoning (14:30 – 16:00)

Hannah Dee, Roberto Fraile, David C. Hogg, and Anthony Cohn.
Modelling scenes using the activity within them.

Antony Galton.

Pareto-optimality of cognitively preferred polygonal hulls for dot patterns.

Dominik Lücke, Till Mossakowski, and Diedrich Wolter.
Qualitative reasoning about convex relations.

* * * Coffee Break

Panel Discussion (16:30 – 18:00)

* * * Dinner

Doctoral Colloquium I (20:00 – 21:30)

Organized by Sven Bertel (Bremen, DE) and
Marco Ragni (Freiburg, DE)

Friday, Sep 19, 2008

Doctoral Colloquium II (9:00 – 10:30)

Organized by Sven Bertel (U of Bremen, DE) and
Marco Ragni (U of Freiburg, DE)

Workshop WS-1 (11:00 – 18:00)

You-Are-Here Maps: Creating a Sense of Place through Map-like Representations.

Organized by Alexander Klippel (Penn State U, US) and
Stephen Hirtle (U of Pittsburgh, PA, US).

Workshop WS-3 (10:00 – 18:00)

Spatial Language in Context: Computational and Theoretical Approaches to Situation Specific Meaning.

Organized by Kenny Coventry (Northumbria U, UK) and
Ronan O'Ceallaigh (Northumbria U, UK).

Workshop WS-4 (11:00 – 18:00)

Biologically Motivated Models of Spatial Behaviour: Insights from Animals.

Organized by Wolfgang Stürzl (U of Bielefeld, DE) and
Jan M. Wiener (U of Freiburg, DE).

*** Coffee Break (10:30 – 11:00)

*** Lunch Break (13:00 – 14:00)

*** Coffee Break (16:00 – 16:30)

Conference Organization

Program Chairs

Christian Freksa
Nora S. Newcombe
Peter Gärdenfors

Local Organization

Stefan Wöfl

Tutorial Chair

Thomas F. Shipley

Poster Session Chair

Christoph Hölscher

Workshop Chairs

Kenny Coventry
Jan M. Wiener

Doctoral Colloquium Chairs

Sven Bertel
Marco Ragni

Technical and Administrative Support

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