Conference On Spatial Information Theory (COSIT) 2015

Santa Fe, New Mexico, USA
October 12-16, 2015

MONDAY

Registration Opens at 8:00 AM

Lumpkins Ballroom

9:00 – 5:00 Workshops and Tutorials

8:00 – 10:15 Morning Coffee

Lumpkins Ballroom

Geographic Information Observatories (GIO 2015): How, Who, and Why of Spatial Information

Ballen Boardroom

Organizers: Benjamin Adams, *University of Aukland*
Mark Gahegan, *University of Aukland*
Ola Ahlqvist, *Ohio State*

Teaching Spatial Thinking from Interdisciplinary Perspectives

Stiha Room

Organizers: Heather Burte, *Tufts University*
Tomi Kauppinen, *Aalto University*

Events and Processes in Collectives (EPIC)

Exchange Room

Organizers: Zena Wood, *University of Greenwich*
Antony Galton, *Exeter University*
Mike Worboys, *University of Greenwich*
Matt Duckham, *RMIT University*

Cognitive Engineering for Spatial Information Processes: From User Interfaces to Model-Driven Design

New Mexico Room

Organizers: Sven Bertel, *Bauhaus-Universität Weimar*
Peter Kiefer, *ETH Zurich*
Alexander Klippel, *Pennsylvania State University*
Simon Scheider, *ETH Zurich*
Tyler Thrash, *ETH Zurich*

12:00 — 2:00 Lunch Provided

La Terraza

2:45-3:15 Afternoon Coffee

Lumpkins Ballroom

6:00 – 8:30 Welcome Reception and Poster Session

Support provided by the University of Saskatchewan and the University of New Mexico

La Terraza

Natural language queries for data visualization
Sarah Battersby, *Tableau Software*
Vidya Setlur, *Tableau Software*

Measuring Space and Behavior: A Visual Summary Approach
Mark Simpson, *Pennsylvania State University*
Kai-Florian Richter, *University of Zurich*
Jan Oliver Wallgrün, *Pennsylvania State University*
Alexander Klippel, *Pennsylvania State University*

A Similarity Measure for Collectives
Zena Wood, *Greenwich University*

Mapping the risk of avian influenza in wild birds and poultry in China
Ping Zhang, *JiLin University*

Computing with Core Concepts of Spatial Information
Sara Lafia, *UC Santa Barbara*
Werner Kuhn, *UC Santa Barbara*
Andrea Ballatore, *UC Santa Barbara*

How Many Pointers? Use of Multiple Small-Screen Displays on Maps to Refer to Off-Screen Locations
Sven Bertel, *Bauhaus-Universität*
Dora Spensberger, *Bauhaus-Universität*

Identifying Patterns in Geospatial Natural Language
Kristin M. Stock, *Massey University*

Burst Analysis with Spatial Constraints for Spatiotemporal Events
Eun-Kyeong Kim, *Pennsylvania State University*

TUESDAY

Main Conference Program

8:00 – 10:15 Morning Coffee

Lumpkins Ballroom

9:00 – 10:00 Keynote: Vectors, Paths, and Geospatial Topology in the Human Brain

Hugo Spiers, *University College London*

Host: Lynn Liben

Lumpkins Ballroom

Support for the Keynote Speaker provided by the University of New Mexico Department of Psychology

10:00 – 10:30 Break

Lumpkins Ballroom

10:30 – 12:30 Formalizing and Modeling Space-time.

Session Chair: Kathleen Stewart-Hornsby

Lumpkins Ballroom

Outline of a Formal Theory of Processes and Events, and Why GIScience Needs One
Antony Galton, *Exeter University*

Modelling Spatial Structures
Franz-Benjamin Mocnik, *TU Vienna*
Andrew U. Frank, *TU Vienna*

Strong Spatial Cognition
Christian Freksa, *Universität Bremen*

Extracting Causal Rules from Spatio-temporal Data
Antony Galton, *Exeter University*
Matt Duckham, *RMIT University*
Alan Both, *RMIT University*

12:30 – 3:00 Lunch: On your own

2:45 – 3:15 Afternoon Coffee
Lumpkins Ballroom

3:00 – 5:00 Qualitative Spatio-temporal Reasoning and Representation I.

Session Chair: Tony Cohn

Lumpkins Ballroom

A Conceptual Quality Framework for Volunteered Geographic Information
Andrea Ballatore, *UC Santa Barbara*
Alexander Zipf, *Universität Heidelberg*

A Coq-based Axiomatization of Tarski's Mereogeometry
Richard Dapoigny, *University of Savoy (Chambéry University)*
Patrick Barlatier, *University of Savoy (Chambéry University)*

Shape similarity based on the qualitative spatial reasoning calculus eOPRA
Christopher Dorr, *University of Maine*
Longin Latecki, *Temple University*
Reinhard Moratz, *University of Maine*

From Metric to Topology: Determining Relations in DiscreteSpace
Matthew Dube, *University of Maine*
Jordan Barrett, *University of Maine*
Max J. Egenhofer, *University of Maine*

Dinner: On Your Own

WEDNESDAY

8:00 – 10:15 Morning Coffee
Lumpkins Ballroom

9:00 – 10:30 Language and Space.
Session Chair: David Mark
Lumpkins Ballroom

Where Snow is a Landmark: Route Direction Elements in Alpine Contexts
Ekaterina Egorova, *University of Zurich*
Thora Tenbrink, *Bangor University*
Ross S. Purves, *University of Zurich*

Spatial Natural Language Generation for Location Description in Photo Captions
Mark Hall, *Edge Hill University*
Christopher Jones, *Cardiff University*
Philip Smart, *Cardiff University*

More Than a List: What Outdoor Free Listings of Landscape Categories Reveal about Commonsense Geographic Concepts and Memory Search Strategies
Flurina M. Wartmann, *University of Zurich*
Ekaterina Egorova, *University of Zurich*
Curdin Derungs, *University of Zurich*
David M. Mark, *University at Buffalo*
Ross S. Purves, *University of Zurich*

10:30 – 11:00 Break
Lumpkins Ballroom

11:00 – 12:30 Signs, Images, Maps, and other Representations of Space.

Session chair: Mary Hegarty

Lumpkins Ballroom

Identifying the Geographical Scope of Prohibition Signs
Konstantin Hopf, *Universität Bamberg*
Florian Dageforde, *Universität Bamberg*
Diedrich Wolter, *Universität Bamberg*

Conceptualizing Landscapes: A Comparative Study of Landscape Categories with Navajo and English-speaking Participants
Alexander Klippel, *Pennsylvania State University*
David M. Mark, *University at Buffalo*
Jan Oliver Wallgrun, *Pennsylvania State University*
David Stea, *Texas State University*

Citizen Science Land Cover Classification Based on Ground and Aerial Imagery
Kevin Sparks, *Pennsylvania State University*
Alexander Klippel, *Pennsylvania State University*
Jan Oliver Wallgrun, *Pennsylvania State University*
David M. Mark, *University at Buffalo*

12:30 for remainder of day – Explore Santa Fe and surrounding environs

THURSDAY

8:00 – 10:15 Morning Coffee
Lumpkins Ballroom

9:00 – 10:00 Keynote: Forecasting and Backcasting — Time, Space, and Sustainability
Claudia Bauzer Medeiros, *University of Campinas*
Host: Werner Kuhn
Lumpkins Ballroom
Support for the Keynote Speaker provided by the University of New Mexico Office of Research

10:00 – 10:30 Break
Lumpkins Ballroom

10:30-12:30 Qualitative Spatio-temporal Reasoning and Representation II. Session Chair: Zena Wood

Lumpkins Ballroom

Swiss Canton Regions: A Model for Complex Objects in Geographic Partitions
Matthew Dube, *University of Maine*
Max J. Egenhofer, *University of Maine*
Joshua Lewis, *University of Maine*
Shirly Stephen, *University of Maine*
Mark Plummer, *University of Maine*

Spatial Symmetry Driven Pruning Strategies for Efficient Declarative Spatial Reasoning
Carl Schultz, *Universität Bremen*
Mehul Bhatt, *Universität Bremen*

On Distributive Subalgebras of Qualitative Spatial and Temporal Calculi
Zhiguo Long, *University of Technology Sydney*
Sanjiang Li, *University of Technology Sydney*

What is in a Contour Map? A Region-based Logical Formalization of Contour Semantics
Torsten Hahmann, *University of Maine*
Lynn Usery, *USGS*

12:30 – 3:00 Lunch: On Your Own

2:45 – 3:15 Afternoon Coffee

Lumpkins Ballroom

3:00 – 5:00 Navigation by Humans and Machines.

Session Chair: Daniel Montello

Lumpkins Ballroom

Lifelong Learning of Spatial Models for Navigation
Susan Epstein, *Hunter College and The Graduate School of The City University of New York*
Anoop Aroor, *The Graduate School of The City University of New York*
Matthew Evanusa, *Hunter College of The City University of New York*
Elizabeth Sklar, *Kings College, London*

Defensive Wayfinding: Incongruent Information in Route Following
Martin Tomko, *University of Zurich*
Kai-Florian Richter, *University of Zurich*

A Wayfinding Grammar Based on Reference System Transformations
Peter Kiefer, *ETH Zurich*
Simon Scheider, *ETH Zurich*
Ioannis Giannopoulos, *ETH Zurich*
Paul Weiser, *ETH Zurich*

Quantifying the Significance of Semantic Landmarks in Familiar and Unfamiliar Environments
Teriitutea Quesnot, *Université Laval*
Stephane Roche, *Université Laval*

6:00 Banquet

La Terraza

FRIDAY

9:00 – 5:00 Doctoral Colloquium

Lumpkins Ballroom

9:00-9:10 Introduction

Colloquium Chairs: Sarah Battersby and Amy Lobben

9:10 – 10:10 Session 1: Thinking About Location:

Spatial Preposition Specification for Improved Scene Descriptions
Stacy A. Doore, *University of Maine*

Cortical Correlates of Reference Frame Switching
Daniel Barto, *University of New Mexico*

New Immersive Virtual Reality Technologies and Spatial Cognition
Mark Simpson, *Pennsylvania State University*

10:10-10:20 Break

10:20 – 11:20 Session 2: GeoSpatial Patterns

Local Indicators of Temporal Burstiness for Spatio-Temporal Event Analysis
Eun-Kyeong Kim, *Pennsylvania State University*

News and Events, Politics and Sport: Reading Geopolitical Conveyance in Digital News Media
Sam Stehle, *Pennsylvania State University*

Incorporating Audio into Thematic Map Design: Communicating Distribution
Megen Brittell, *University of Oregon*

11:20-11:30 – Break

11:30 – 12:30 Session 3: Models and Ontologies

Integrated Modelling With Fields and Agents
Merijn de Bakker, *Universiteit Utrecht*
Kor de Jong, *Universiteit Utrecht*
Oliver Schmitz, *Universiteit Utrecht*
Derek Karssenberg, *Universiteit Utrecht*

Geo-ontology Quality Evaluation and Difference Measurement
Bo Yan, *UC Santa Barbara*

Closing the 'Data-Gap' with Theoretical Geography and Synthetic Geographic Information
Carlos Baez, *UC Santa Barbara*

12:30-2:30 Lunch Provided
Research/Scholar Speed-Dating
La Terraza

Acknowledgements:

We would like to thank the following sponsors for their support of COSIT 2015:

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University of New Mexico Department of Psychology
University of New Mexico College of Arts and Sciences
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We would like to recognize the following student scholarship Recipients:

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