

## Call for Submissions

Special Issue of Spatial Cognition and Computation

on Eye Tracking for Spatial Research

<http://www.spataleyetracking.org/scc-2015/>

Deadline: May 27, 2015

### Aims and Scope

Spatial information acquisition happens in large part through the visual sense. We perceive space through our eyes, reason about the task at hand, and perform a visual search if we figure we need more information. Consequently, a person's visual attention can serve as a proxy for her cognitive processes.

Eye tracking allows us to measure a subject's visual attention, yielding a rich source of information on where, when, how long, and in which sequence certain information in space or about space is looked at. Not surprisingly, eye tracking has become a popular method for investigating research questions related to Spatial Cognition, Geographic Information Science (GIScience), Cartography, and related fields. This includes studies on how people interact with geographic information and studies on how space is perceived in decision situations. Knowledge of how people perceive space can help us, for instance, to design better maps and other spatial representations or to decide on the optimal placement of signage in indoor and outdoor environments. Last but not least, eye tracking enables us to enhance existing, or even create new cognitive models describing and predicting how humans behave in, and reason about space.

Recent technological developments in the area of mobile eye trackers have opened up new perspectives for their use in spatial research by allowing for studies outside the research lab, adding the user's position as another dimension of the data. The resulting 3D gaze vectors enable an analysis of complex spatial decision processes that include locomotion and visual exploration of the surroundings; pedestrian navigation is one example.

Recent hardware developments have also introduced real-time processing capabilities fostering potential for novel interactive applications. Interaction principles based on the processing, interpretation, and reaction to the user's gaze are actively investigated in human computer interaction (HCI) research. This includes gaze-based interfaces to geoinformation in both desktop computer and mobile usage scenarios. Hence, cognitive models that take visual attention into account are not only of theoretical interest, but also of practical importance for these interactive settings.

The planned special issue is motivated by this increasing interest in eye tracking methods for spatial research. We solicit contributions which 1) use eye tracking as a methodology for Spatial Cognition research, 2) investigate gaze-based interaction principles for interfaces to spatial information, and/or 3) advance eye tracking methodology for spatial research.

Topics of interest include, but are not limited to

- Visual Perception and Exploration of (Indoor and Outdoor) Space
- Eye Tracking as a Tool for Spatial Cognition Research
- Wayfinding Studies and Eye Tracking
- Gaze-Based Interaction with Visuo-Spatial Representations and Maps
- Spatio-Temporal Analysis and Visualization of Eye Tracking Data
- Eye Tracking in Traffic Research, Car Navigation, and Public Transport
- Gaze-Aware Mobile Assistance
- Usability Analysis of GIS with Eye Tracking
- Evaluation of Cartographic and other Spatial Visualizations with Eye Tracking

#### Special Issue Guest Editors

- Peter Kiefer, Geoinformation Engineering, ETH Zurich
- Ioannis Giannopoulos, Geoinformation Engineering, ETH Zurich
- Martin Raubal, Geoinformation Engineering, ETH Zurich
- Andrew Duchowski, School of Computing, Clemson University

#### Contact

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#### Dates

May 27, 2015	Submission of manuscripts
August 5, 2015	Notification about decisions on initial submissions
November 5, 2015	Submission of revised manuscripts
December 23, 2015	Notification on final decisions

Except for the initial submission deadline, these dates are indicative rather than definitive.

#### Submission Instructions

<http://tinyurl.com/scc-submit>

In the submission process, please choose “yes” when asked whether your manuscript is a candidate for a special issue.