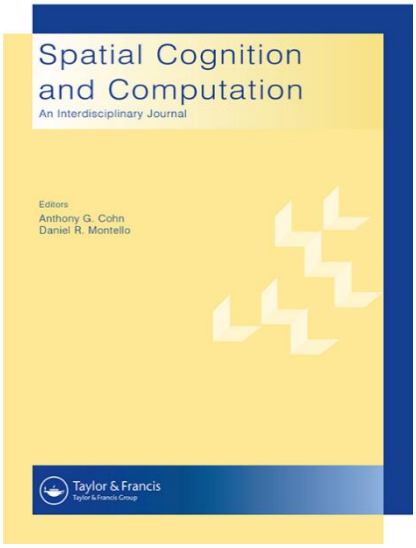
Extended Call for Papers
Spatial Cognition and Computation Special Issue
Geographic Information, Human-Computer Interaction, and Navigation



We are extending the original call for papers for this special issue to a submission deadline of November 30th, 2020 due to the Coronavirus pandemic.

We invite papers to be submitted to a special issue in Spatial Cognition and Computation on Geographic Information, Human-Computer Interaction, and Navigation. Research on navigation, assistive devices providing geographic information, and their role in wayfinding and spatial learning has an extensive history in the spatial, cognitive, and geographic sciences. Opportunities for further research are provided by: (1) the increasing availability of navigation aids, such as global positioning systems (GPS) and GPS-enabled smartphone devices; (2) increasing complexity of these devices; (3) a deeper understanding of how individuals navigate and learn environments using these devices. This special issue aims to bring together perspectives from cognitive psychology, cartography, computer science, human-computer interaction, and geovisualization to answer these open questions.

Everyday we navigate, whether for work, play, or to fulfill basic needs. Often during navigation, people utilize aids that provide geographic information. The availability and complexity of navigation aids have increased over the past two decades now that smartphones and mobile assistance devices are more widely available to the general public. Maps once provided mostly visual information on paper, and yet today many individuals utilize digital maps that they can hear, touch, see, and interact with. Given this increasing complexity, more research is needed to better understand how people utilize these devices and how device design affects navigation.

Researchers across many disciplines have also claimed that GPS devices can degrade navigation and spatial learning. Yet there remain many unanswered questions with important applications given the financial and health costs associated with poor navigation, degraded spatial learning, and loss of navigation skills throughout the lifespan. Additionally, it is crucial to design navigation aids to be accessible to a broad population with varying needs, such as blind and visually impaired individuals. Individual differences in cognitive mapping also suggest a need to adjust

presentation of device information to individual users and contexts. Due to these reasons, there is a need for further interdisciplinary research to systematically evaluate user-device interaction, as well as develop and apply cognitive theories to support navigation with these devices.

Topics of interest for the special issue include (but are not limited to):

- How navigation assistive device, content, or cartographic design elements affect navigation or spatial learning
- The effects of heads-up displays and maps in virtual or augmented reality on navigation behavior and outcomes
- The cognitive neuroscience of navigation assistive device use
- How navigation aid use might be affecting spatial cognitive abilities throughout the lifespan. Are GPS devices really causing poorer spatial learning and navigational outcomes, long-term? Are they changing the mobility of children and older adults?
- Implementation and study of multimodal navigation aids to increase accessibility and understanding of multisensory integration to support navigation. How do we design devices to support a broad range of users and increase accessibility?
- Can the way in which people utilize navigation devices tell us about basic navigation processes or individual differences in these processes?
- Displays are becoming increasingly dynamic and responsive to individual users. How does varying display information based on user characteristics (e.g. navigation ability) or user states (e.g. arousal measured via a smart device) affect navigation? Just because we can, should we?

Guest editors:
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Submitted papers will be refereed by the usual standards of Spatial Cognition and Computation. Instructions for submitting a manuscript can be found on the journal's website. Submissions will be handled through the submission system, Manuscript Central (http://mc.manuscriptcentral.com/hspcc), and should not exceed 6000 words.

The extended deadline for submissions is November 30th, 2020. Please contact scc.gisnav.si@gmail.com (CC iantanner.ruginski@geo.uzh.ch) if you have any questions about the special issue.

Manuscripts should be submitted as a single .pdf file and any figures should be included in the body of the text, not placed at the end of the manuscript. Please see https://www.tandfonline.com/hscc20 for more information concerning the journal.