

## Preface

The International Workshop on Spatial Knowledge Acquisition with Limited Information Displays (SKALID 2012) was held August 31, 2012 in Kloster Seeon, Germany, in conjunction with the biennial interdisciplinary Spatial Cognition 2012 conference. The goal of the SKALID workshop was to bring people together across a broad range of disciplines to discuss methodological, technological, and theoretical concepts, challenges, and techniques related to the design of limited information displays for use in spatial contexts. Limited information displays were broadly characterized as any interface which is restricted in its size or resolution and may encompass auditory, haptic, linguistic, visual, or multimodal information displays. Of particular interest of this workshop was to solicit perspectives that cut across multiple research domains or to leverage established theories and methods from one field in order to discuss how these approaches could provide new insights or design guidance for other disciplines.

All SKALID submissions were refereed by 3 members of the workshop's international Program Committee. This team helped ensure that all submissions were relevant to the workshop, had significant intellectual and scientific merit, and had clear and coherent exposition of material. Seven papers were accepted for presentation at the workshop and publication in these proceedings. Professor Stephen Hirtle from The University of Pittsburgh was the keynote speaker. In addition to summarizing their research, each presenter was asked to pose provocative or challenging questions about their work or the field more broadly. This allowed for significant time for interactive and fruitful discussion by all workshop participants.

As is obvious from the submissions, we achieved our interdisciplinary goal. Accepted papers encompassed researchers from a broad range of disciplines, including: Computer Science, Spatial Informatics, Information Systems, Human-Computer Interaction, Psychology, and others. Topics addressed in these papers covered a broad range of basic theories, empirical evidence, and interface/hardware design and evaluation, but all were linked by an interest in limited information displays. A range of visual, non-visual, and multimodal displays were discussed, with the intended users including both sighted and blind persons. An important theme evident in many of the papers dealt with what and how spatial information should be best displayed to meet the needs and tasks of this diverse user base. The workshop topics varied from selection of environmental variables, including haptic, linguistic, and visual information sources, to development of route directions, scene descriptions, and maps which are both usable and cognitively plausible. The use of cameras, augmented reality, and crowd sourcing techniques to generate and annotate limited information displays on mobile devices was the topic of several papers. Others dealt with similar ideas based on comparing information visualization techniques or new approaches for generating dynamic haptic and multimodal maps. Some of the papers advanced new

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theories or approaches, others evaluated the efficacy of specific new techniques or technologies, and still others performed usability testing and behavioral experiments in order to optimize interface design, insure that the information provided was perceptually and cognitively valid, or to gauge end-user acceptance. The scenarios and environments where these limited information displays were being evaluated, and the tasks aimed to be supported, ranged from perception and learning of small-scale scenes of rooms, to navigation and cognitive map development of multi-level indoor buildings, to learning and navigation of outdoor environments, to spatial knowledge acquisition at large geographic scales.

We sincerely thank the many people who made SKALID 2012 such a success: the Program Committee, the Spatial Cognition Organizing Committee, the paper contributors, and all the participants present at the workshop.

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# Organization

SKALID 2012 was jointly organized by the Transregional Collaborative Research Center SFB/TR 8 Spatial Cognition, at the University of Bremen and the VEMI Lab, in the Spatial Informatics program, School of Computing and Information Science, at the University of Maine.

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