

**TELCOM 2011: Telecommunications Seminar**  
**Cognitively Ergonomic Assistance in Navigation**  
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**Abstract:** In this talk, I will illustrate the overall motivation and approach underlying my work so far. My major interest is how principles of human perception and understanding of space can be implemented in assistance systems. A specific focus is on the environment as information carrier; the application area mostly looked at is navigation in outdoor environments. Implementing cognitive principles leads to cognitively ergonomic assistance that is supposed to be easier to understand and use. In the main part of the talk, I will detail one aspect of this approach, namely schematization in map construction. Schematization produces task-specific visualizations of spatial information that highlight those bits that are relevant for the task at hand while ignoring others. It draws from both cartographic generalization and theories of mental prototypes. I will present examples of different kinds of schematic maps used for orientation and navigation.

**Bio:** Kai-Florian Richter has a PhD in Informatics (computer science) from Bremen University, Germany. Prior to coming to the School of Information Sciences at Pitt, he has been working in the Transregional Collaborative Research Center SFB/TR 8 Spatial Cognition in Bremen for the past 6 years. In summer 2007, he was a visiting researcher at the Geomatics department, University of Melbourne, Australia. Kai-Florian's work is set in the intersection between Artificial Intelligence, Spatial Cognition, and Geo-Information Science. His main interests are in the intelligent communication of spatial information and in the implementation of cognitive principles in navigation assistance.