



**Context-Specific Route Directions:  
Generation of Cognitively Motivated  
Wayfinding Instructions**

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Route directions assist people in unfamiliar environments. In order to be useful, these route directions should reflect human conceptualization of wayfinding situations, they should be well memorable and they should cover the spatial situations to be encountered while following a route. In this work, Guard is presented, a process for generating context-specific route directions that cover these properties.

The route directions generated by Guard explicitly take into account environmental characteristics and a route properties. They implement principles of good route directions, both from a cognitive and a representation-theoretic perspective, for example, the inclusion of landmarks and combining several consecutive instructions into a single one (so called spatial chunking). The generation of route directions is realized as an optimization process that selects those instructions that ease conceptualization the most. The process results in a sequence of chunks, each representing an instruction for following the given route.

Results of this work are twofold. On one hand, it provides a thorough analysis of route directions from a representation-theoretic perspective resulting in a systematics of elements that can be employed in generating route directions. On the other hand, it provides a process for generating route directions which is designed to ease including further and new findings in cognitive science and may serve as a test-bed for empirical studies.

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