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GeoGami: A Research Software for Training and Measuring Navigational Map Reading Competence

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Abstract

Orientation competence, the ability to determine one's location and heading direction, stands as one of the most fundamental skills. Maps are important for navigators providing spatial orientation. Researchers have investigated navigational map reading competence, wayfinding strategies, and performance in many experiments facing similar challenges to assess navigation behaviour in real and virtual environments. GeoGami is a free and open-source research software tailored for training and evaluating map-reading competence in navigational studies. Our software supports the assessment and training of sub-competencies of navigational map-reading through tasks tailored towards a specific sub-competency. We explain the unique design of the GeoGami, supporting diverse setups of navigational experiments while systematically assessing the performance. Our key contribution lies in demonstrating how theoretically defined navigational map-reading competencies can be implemented in GPS-enabled software and how systematically designed research software can effectively harness the diverse capabilities of digital maps and location-based systems for research and training purposes.