CfP Special Issue on geographic artificial intelligence (geoAI)

(KI - German Journal of Artificial Intelligence)

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Researchers in Artificial Intelligence (AI) and Geography have been developing various points of contact in the past, with many possibilities of mutual benefit in the future. Recently, subsymbolic AI methods, such as Deep Learning, have increased the quality and scalability of data processing methods in remote sensing, geographic information retrieval, natural language processing (NLP) and geospatial modeling, among others. Furthermore, there is a tradition of using symbolic AI approaches to raise the quality and scalability of methods by linking, e.g., Geography with agent-based simulation (ABM), spatial cognitive reasoning with Robotics, as well as Geography with the Knowledge Graphs (KG) in the Semantic Web. At the same time, geographic information has become an indispensable resource in itself, needed not only for adding spatial intelligence to machines, and for making opaque models transparent, but also for understanding what kind of intelligence is needed to refer to place and to handle space. Understood in this broader sense, geoAI has the potential of fundamentally improving the way geographic information can be processed and interpreted by both humans and machines.

For this special issue, we invite researchers who investigate the kind of knowledge needed to account for Geography and space with(in) intelligent machines. We are looking for **original research articles**, **project reports** and **discussion articles** on (among others):

- Symbolic (Semantic Web and ontological) approaches to geoAI
- Sub-symbolic (deep learning/ML) based approaches to geoAI
- Explainable geoAI (XgeoAI): interpreting and opening black box models with a-priori knowledge
- Computational models of geospatial intelligence and spatial cognition
- Methods for geospatial knowledge graphs (geoKG)
- Reusability of geoAI models and reproducibility
- Knowledge models of Geography and geographic information for data scientists
- Pragmatic intelligence: Models of purpose and design of workflows with geoinformation
- The human in the loop and models of human interaction in geoAI

Application areas include, but are not restricted to:

- Agent-based models (ABM) and geoAI in Geography and Geosciences
- AI in geographic information retrieval (GIR) and NLP: distant reading of geolocated texts
- Geographic question-answering (geoQA) and automation of geographic data analysis
- AI-enhanced geovisualization and dialogue methods
- Object recognition in remote sensing and georeferenced image processing
- geoAI in robotics, ubiquitous sensors and navigation systems

Submission deadline: 15 July 2022