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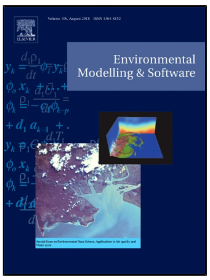

An Intelligent System on Knowledge Generation and Communication about Flooding

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Highlights:

- Development of an artificial intelligence system for flood-related natural language questions
- Use of custom ontologies to integrate domain knowledge
- Development of a knowledge engine as a software-as-a-service application
- Integration of many communication channels for the use of the knowledge engine

Abstract

Communities are at risk from extreme events and natural disasters that can lead to dangerous situations for residents. Improving resilience by helping people learn how to better prepare for, recover from, and adapt to disasters is critical to reduce the impacts of these extreme events. This project presents an intelligent system, Flood AI, designed to improve societal preparedness for flooding by providing a knowledge engine that uses voice recognition, artificial intelligence, and natural language processing based on a generalized ontology for disasters with a primary focus on flooding. The knowledge engine uses flood ontology to connect user input to relevant knowledge discovery channels on flooding by developing a data acquisition and processing framework using environmental observations, forecast models, and knowledge bases. The framework's communication channels include web-based systems, agent-based chatbots, smartphone applications, automated web workflows, and smart home devices, opening the knowledge discovery for flooding to many unique use cases.

Keywords

Intelligent systems; natural language processing; knowledge generation; ontology; disaster preparedness; information communication

Software availability

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