



## ISCRAM 2023

University of Nebraska at Omaha's College  
of Information Science & Technology  
Omaha, Nebraska, USA

# TRACK: AI for Disaster Risk Management (AIforDRM)

20<sup>th</sup> International Conference on  
INFORMATION SYSTEMS FOR CRISIS RESPONSE AND MANAGEMENT

*“Theme: Building Humanitarian Technologies  
for our Emerging Future”*

**Workshops and Doctoral Symposium May 27<sup>th</sup>, 2023**

**Conference May 28<sup>th</sup>-31<sup>th</sup>, 2023**

**Omaha, Nebraska - USA**

The University of Nebraska at Omaha (UNO)

<http://ISCRAM2023.NET>

### INTRODUCTION TO THE TRACK

This track aims to facilitate a forum for presenting state-of-the-art works on information systems infused with Artificial Intelligence (AI) technologies for disaster risk management, including novel ontologies, semantic data models, knowledge graphs, natural language processing, computer vision, machine learning methods, and data-driven planning and optimization for decision processes such as emergency resource allocation.

Timely extraction and management of relevant information during an emergency, a disaster, or a crisis event is a critical requirement for the design of information systems to support decision-making. Collecting, filtering, representing, reasoning, and distributing relevant information to different stakeholders timely and in an interoperable format is challenging yet critical. AI technologies present potential solutions to manage this complexity of information management during disasters, for example, transforming unstructured data streams into a structured form of actionable knowledge can provide real-time decision support to the emergency management agencies. Similarly, principled resource optimization that takes future uncertainty into account can ensure that resources focus on non-myopic gains.

Information systems infused with AI technologies will display some ability to reason, perceive, learn or act intelligently in their environments; and they may have proactive, reactive, autonomous and/or social aspects. This track welcomes contributions to the theory, methodology and practice of developing and evaluating AI systems in the context of supporting disaster risk management for preparedness, response, and recovery operations of emergency management agencies.

## TRACK TOPICS

The following topics are proposed but not limited to:




- End-to-end AI system design for analysis, prediction, planning, preparation, and response
- Knowledge engineering for disaster, emergency, and crisis events including
- Development and applications of ontologies and knowledge graphs for disaster risk management
- Evacuation and rescue planning modeling using AI
- Resource allocation modeling using AI
- Human-AI interaction and human-aware AI for disaster risk management
- Conversational AI technologies for disaster risk management
- Humanitarian logistics modeling
- Intelligent context-aware modelling and processing
- Intelligent training systems
- Intelligent user interfaces
- Applications of the semantic web and linked data to interoperability during disasters
- Case studies featuring the application of AI techniques in the deployed systems to support disaster management operations
- Cooperative decision-making
- Coordination, collaboration and decision support technologies and systems
- Decision making under uncertainty
- Application of AI and semantic technologies in different sectors of disaster risk management, including natural hazards, terrorism, chemical hazards, public safety, smart cities
- Knowledge representation, discovery, and reasoning
- Machine learning and deep learning applications for crisis management
- Modeling and simulation tools for crisis and disaster situations
- Multi-agent systems for emergency simulation
- Optimization methods for emergency response planning and scheduling
- Event forecasting and early warning systems
- Querying and filtering on heterogeneous, multi-source streaming disaster data
- Rule mining and reasoning with uncertainty
- Risk, damage, and loss assessment using predictive modeling
- Rule and case-based reasoning
- Social semantic web for disaster risk management
- Computer vision models for object recognition from multimedia data streams during crises
- Natural Language Processing for situational awareness

## REVIEWER BOARD

The co-chairs will build upon their network of researcher reviewers and participants from running the track of 'AI systems for Crises and Risks' in the past few years at ISCRAM to create the reviewer board. Each submitted paper will be reviewed by at least three external reviewers serving on this board.

## TRACK CHAIR AND CO-CHAIR

Dr. Hemant Purohit and Dr. Antonio De Nicola have been co-chairing, along with other ISCRAM members, the track series on AI systems for Crises and Risks at the annual ISCRAM conferences for the past few years. Dr. Ayan Mukhopadhyay will further complement the team as a co-chair who is highly passionate in translating AI research for social good and is an active member of AI research community. He brings an extensive experience of designing and implementing AI systems to tackle decision-making under uncertainty for emergency response applications.

	<p>Dr. Hemant Purohit*  <a href="mailto:hpurohit@gmu.edu">hpurohit@gmu.edu</a>          George Mason University, USA  <a href="https://mason.gmu.edu/~hpurohit/">https://mason.gmu.edu/~hpurohit/</a></p>
	<p>Dr. Antonio De Nicola  <a href="mailto:antonio.denicola@enea.it">antonio.denicola@enea.it</a>          ENEA  <a href="https://sites.google.com/site/antoniodenicola/">https://sites.google.com/site/antoniodenicola/</a></p>
	<p>Dr. Ayan Mukhopadhyay  <a href="mailto:ayan.mukhopadhyay@vanderbilt.edu">ayan.mukhopadhyay@vanderbilt.edu</a>          Vanderbilt University, USA  <a href="https://ayanmukhopadhyay.github.io/">https://ayanmukhopadhyay.github.io/</a></p>

\*Corresponding Chair

