KNOWLEDGE, SEMANTICS AND AI FOR RISK AND CRISIS MANAGEMENT

Experience and volume of data are generated and used in risk and crisis management. Structuring this amount of data and learning from them are still big challenges to be faced to help actors either in decision-making or in operations. Otherwise, several techniques have been developed in the last century in Artificial Intelligence (AI) study and Computer Supported Cooperative Work (CSCW) that can be applied to face this challenge. The combination of these tools and methods continue to show promising results in improving sharing of information in crisis and emergency contexts.

There exist many approaches of Artificial Intelligence such as, decision trees, fuzzy logic and neural networks. Machine learning, in particular, is an approach that gives "computers the ability to learn without being explicitly programmed" by learning from and making predictions from data. Also, the use of AI and ontologies as a knowledge representation mechanism offers many advantages in information retrieval and analysis. In addition, semantic models of knowledge allow users as well as systems to clearly understand what is happening in a crisis situation and can provide support to decision makers.

This track mainly addresses the application of semantic models and Artificial intelligence methods and tools trying to answer to users' needs in the scope of risk and crisis management.

TRACK FORMAT

The chairs of this track plan to apply a selective and interactive review process. We plan to make authors and reviewers discuss and exchange comments on the paper in order to improve the quality of the manuscript before the camera ready for the accepted papers. We also plan to organize a discussion panel in the end of the presentations session. A report including all discussed issues and interactions between attendees will be edited and shared with all attendees. In addition, co-chairs plan to edit a journal special issue on the topic of the Track. Co-chairs already started the identification of suitable journals and they plan to set an agenda matching with ISCRAM 2019 agenda in order to invite best papers accepted in the track to be extended and included in the special issue. The final goal is to build an AI community of ISCRAM.

TRACK TOPICS

The topics of this track concern applications of AI and semantic technologies for improving risks and crisis management and computer-supported cooperative work (CSCW). Topics of interest include, but are not limited to:
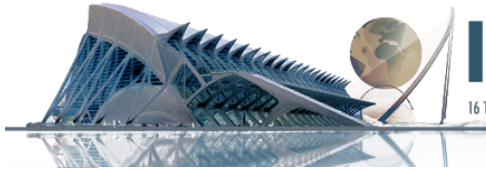
- Analysis, prediction, planning, preparation, and response in crisis and emergency scenarios
- Big data analytics and management in crisis management
- Communication and discussions analysis
- Communication infrastructures, technologies and services for crisis management
- Coordination, collaboration and decision support technologies and systems for crisis management
- Cooperative decision-making
- Crisis and emergency knowledge engineering
- Decision making under uncertainty
- Evacuation and rescue geo-planning
- Geo-Information technologies for crisis management
- Humanitarian logistics
- Interoperability in crisis management
- Knowledge map and visualization
- Knowledge graph
- Machine learning and deep learning applications for crisis management
- Meta-models for crisis
- Modeling and simulation tools for crisis and disaster situations
- Multi-agent systems for emergency simulation
- Ontologies for crisis and/or risk management
- Participatory activities in crisis management
- Prediction and early warning systems
- Process mining
- Reasoning with uncertainty in crisis management
- Resilience engineering
- Risk, damage and loss assessment
- Rule and case based reasoning
- Querying and filtering on heterogeneous, multi-source streaming disaster data
- Semantic web
- Social semantic web
- Situation awareness
- Smart cities resilience
- Social media for crisis management and participatory activities
- Text mining
- Application of AI and semantic technologies in the following sectors: disaster management, terrorism, natural hazards, chemical hazards, public safety, smart cities resilience, etc.

TRACK CO-CHAIRS
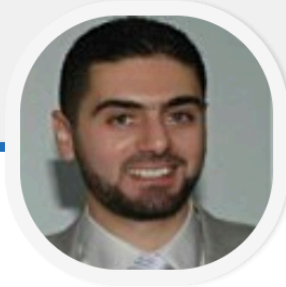
Hedi Karray

INP-ENIT, UNIVERSITY OF TOULOUSE, FRANCE

Hedi KARRAY received his Ph.D. degree in the area of applied informaticsfrom the University of Franche-Comté, France, in 2012.

Since September2013 he holds an Associate Professor at the National Engineering School of Tarbes of the National Polytechnic Institute of Toulouse, Part of the Federal University of Toulouse. The research topics of Dr. Karray center onOntology-Based Engineering, semantic interoperability and decisionsupport systems. He is involved in national and international projects in thetopic of emergency management, Universe observation and Earthobservation including disasters prediction. In 2016, he had a visiting researcher position at the State University of New York at Buffalo (UB). Since his stay at UB, Dr. Karray became senior scientist at National Center for Ontological Research. He is co-chairing Knowledge engineering and Artificial Intelligence Task force of InteropVlab. He is Member of Interoperability and Repositories Advisory Group (IRAG) of the EMMC and Technical Committee Member of IFAC TC 5.3. Enterprise Integration and Networking as well as of Industrial Ontologies Foundry. He has served as a reviewer for several indexed international journals and member of several TPC in few international and national conferences. He is the General chair of IEEE AICCSA 2018 Conference
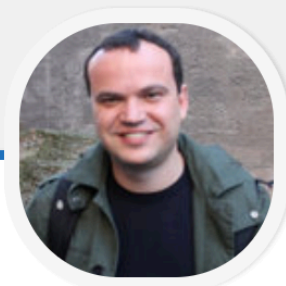

Antonio De Nicola

ENEA, ITALY

Since 2010 Antonio De Nicola serves as a research scientist at ENEA, the Italian national agency for new technologies, energy and sustainable economic development. Here he is member of the Laboratory for the Analysis and Protection of Critical Infrastructures. In the

past he served as researcher at the Italian National Research Council (CNR). He holds a master degree in Physics from Sapienza University of Rome and a PhD in Computer Science from University of Rome Tor Vergata. His principal areas of research activity include emergency management, crisis management, semantic social network analysis, semantic technologies and their applications for social good and industry. His work experience includes over 15 projects. He authored about 50 scientific papers published in international peer reviewed journals such as Information Systems, Communications of the ACM, Physica A, Natural Hazards and Environmental Modelling & Software, and conference proceedings. He is expert reviewer for EU projects and for several scientific journals. He has been program committee member of around 50 scientific conferences. He is also co- chair of the enterprise interoperability for crisis management thematic group of INTEROP-VLab, the European Virtual Laboratory for Enterprise Interoperability.
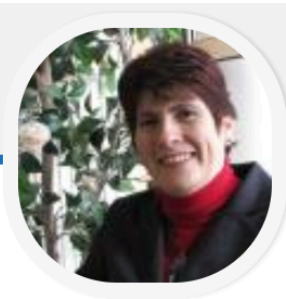
Nada Matta

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Nada Matta, Professor at the University of Technology of Troyes. I study techniques in knowledge engineering and management and specially to handle cooperative activities as product design, crisis management, etc. Currently, I am Director of department of "Human, Environment and ICT". I assumed several responsibilities as: Director of "Scientific group of supervision, and security of complex systems" for 5 years and Director of department of "Information Systems and Telecom" for 2 years. I did my PhD in knowledge engineering and Artificial Intelligence at University of Paul Sabatier in collaboration with ARTEMIS. I worked for four years at INRIA in projects with Dassault-Aviation and Airbus Industry.