# ISCRAM 2016

**The 13th International Conference on Information Systems for Crisis Response and Management | Rio de Janeiro, Brasil | May 22-25, 2016**

# Preliminary Program (version May 13, 2016)

http://www.iscram2016.nce.ufrj.br

| ISCRAM 2016 Program | | | |
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| **Sunday** | | | |
| | Parati 2-3 | Buzios | Angra | Parati 1 |
| **SUNDAY Pre-conference** | | | |
| **9:00-12:30 Sunday** | **Doctoral Colloquium**<br><br>**Coordinators:**<br>**Fiona McNeill and Brian Tomaszewski**<br><br>**DC1** – Harnessing the power of social media to predict mass crisis events<br>**Polly College – Drexel University**<br><br>**DC2** - A Decision Support System for enhancing sustainable humanitarian supply chain operations<br>**Laura Laguna - University of Toulouse**<br><br>**DC3** - Mediation Between Response Organisations and Civil Society in Crisis and Disaster Management<br>**Daniel Auferbauer - Austrian Institute of Technology**<br><br>**DC4** - A total quality framework for the assessment and improvement of emergency plans management<br>**Ana Gabriela Nuñez Avila - Universitat Politècnica de València** | **Tutorial 1**<br><br>**Network Theory in Emergency Management**<br><br>**Kees Boersma, Tim Grant; Peter Groenewegen and Jeroen Wolbers**<br><br>The overall aim of the tutorial is to enable ISCRAM attendees to gain an understanding of where existing network theory can be applied to problems in emergency management, and where research is still needed. Network theory is a branch of mathematics concerned with modelling real-world phenomena as networks, with nodes and arcs. It has been applied to a wide range of scientific domains, including disaster and management studies and military Command & Control (C2). The tutorial will emphasize the hands-on application of the theory to events and entities in Crisis Response and Management, drawing on real cases from the past. | Workshop 1<br><br>**Conceptual Modeling and Ontologies for Crisis and Emergency Information Systems**<br><br>**Organizers: Maria Luiza M. Campos, Renata Guizzardi**<br><br>A tutorial given by Prof. João Paulo Almeida will precede the Workshop.<br><br>**"Using the Unified Foundational Ontology to Inform the Modeling of Socio-Technical Systems"**<br><br>In this short tutorial, we will discuss advances in the last decade concerning the application of foundation and reference ontologies to address semantic issues in the conceptual modeling of socio-technical systems. We will show how well-founded ontologies can serve to inform the design and revision of modeling languages and frameworks, in order to properly represent real-world phenomena. We will discuss the role of a foundational ontology in this process (the Unified Foundational Ontology, UFO), with its different layers covering important aspects of socio-technical systems (including objects, relations, events, agents, agent's social | **Workshop 2**<br><br>**Informal volunteers in crisis management: best practices, chances and limitations**<br><br>**Organizer: Denis Havlik**<br><br>In this workshop, we will discuss the risks and opportunities of ad-hoc and informal volunteers in crisis management, as well as the experiences with different management methodologies for managing such volunteers. In line with the workshop topic, the workshop will be organised as a ½ day World Café. Nevertheless, the participants are encouraged to contribute short papers prior to the workshop as well as to participate in writing of the joint position paper after the workshop.<br><br>For further information on workshop organisation and instructions for preparing the contributions, please join the "informal volunteers" Google plus group. |

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| | | relations, goals, services, situations, etc.) A number of concrete cases of language revision will be discussed encompassing different architectural domains.<br><br>João Paulo Andrade Almeida is associate professor at the Computer Science Department of the Federal University of Espírito Santo, Brazil. He joined the Centre for Telematics and Information Technology at the University of Twente in September 2001, and received his Ph.D. from that university in 2006. During 2006, he worked as a Scientific Researcher for the Telematica Instituut on the application of model-driven approaches to the design of services and service-oriented architectures. He has participated in the European SPICE IST and MODA-TEL IST projects, in the Dutch Freeband WASP project and in the AMIDST project. In 2007, he held a position of adjunct researcher at the Centre for Telematics and Information Technology of the University of Twente. Since 2007, he has been working on the application of ontologies in enterprise architecture and enterprise modeling. He has served as principal researcher in a CNPq/FAPES PRONEX project. | |
| **Breaks** | 10:300 – 11:00   Coffee Break – Foyer | 12:30-14:00   Lunch on your own | |
| **14:00-17:00 Sunday** | **Doctoral Colloquium (second part)**<br><br>**DC5 -** Organisational change in emergency management: Competing understandings about the purpose and uses of social media'<br>**Emma Potter - Queensland University of Technology**<br><br>**DC6**- A systematic approach for collaborative mapping in disaster management<br>**Roberto Rocha - University of São Paulo** | | The objective of this workshop is to discuss the importance and trends of ontologies use and their role on precise conceptual modeling, providing a clear and unambiguous interpretation of the heterogeneous information associated to crisis and emergency management and response. As is the case for all socio-technical systems, the contribution of ontologies and conceptual modeling to the understanding, modeling and designing of information systems in this area is crucial. Proper and effective crisis | |

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| | **DC7** - Data fusion of volunteered geographic information and hydrological sensors for monitoring and early warning of flash floods<br>**Sidgley Camargo de Andrade - University of São Paulo**<br><br>**DC8- TBA**<br>João Moreira - University of Twente | | response and management requires widespread information, understanding of situations and effective means for communication and policy enforcement, shared by both human and artificial agents (including managers, designers and participants of the system). | |
| **18:00-21:00 Sunday Beer Evening Welcome** | **Cervejaria Devassa – Copacabana**<br>Rua Bolivar, 8 – Copacabana<br>Two blocks from the hotel<br>Beer, Caipirinha, sodas and water, plus snacks | | | |

| ISCRAM 2016 Program | | | | |
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| **Monday** | | | | |
| | Parati 1-2-3 | | | |
| **8:00-9:00 Welcome** | Registration and Welcome Session | | | |
| **9:00-10:30 Keynote 1** | **José Holguín-Veras, Ph.D., P.E. - William H. Hart Professor, Rensselaer Polytechnic Institute** <br> **The Top Ten Lessons from Large Disasters and Catastrophes: Implications for Resiliency and the ISCRAM Community** <br><br> Extreme events pose serious logistical challenges to emergency and aid organizations active in preparation, response and recovery operations, as the disturbances they bring about turn normal conditions into chaos. This is particularly true in the case of catastrophic events. Under these conditions, delivering the critical supplies required becomes an extremely difficult task because of the severe damages to the physical and virtual infrastructures and the very limited, or non-existent, transportation capacity. In this context, the response and recovery process is made more difficult by the prevailing lack of knowledge about the nature and challenges of the various components of post-disaster response logistics. This presentation is based on the quick response fieldwork conducted by the author and his colleagues on the largest disasters of recent times, which include, among many others, the 2015 Nepal earthquakes, the 2011 Tohoku disasters in Japan, the 2010 Port-au-Prince earthquake, and the 2005 Hurricane Katrina. The presentation discusses the top lessons that ought to be learned from these disasters, and the implications for resiliency and the research conducted by the ISCRAM community. | | | |
| **10:30-11:00 Coffee Break** | Coffee Break - Foyer | | | |
| | Parati 2-3 | Buzios | Angra | Parati 1 |
| | **SMS 1** <br> **Social Media Use during Hurricane Sandy** <br> **Moderator: Muhammad Imran** | **IDSS 1** <br><br> **Moderator: Matthieu Lauras** | **PCCE 1** <br><br> **Moderator: Berdt Hellingrath** | **PANEL 1:** <br> **Title: Can technology help to build disaster resilience in developing countries?** |
| **11:00-12:30 Session 1** | 163 (F) - Far Far Away in Far Rockaway: Responses to Risks and Impacts during Hurricane Sandy through First-Person Social Media Narratives <br> **Jennings Anderson**, Marina Kogan, Melissa Bica, Leysia Palen, Kenneth Anderson, Rebecca Morss, Julie Demuth, Heather Lazrus, Olga Wilhelmi <br><br> 170 (F) (<mark>Remote</mark>) - Retweetability Analysis and Prediction during Hurricane Sandy <br> **Venkata Kishore Neppalli**, Murilo Cerqueira Medeiros, Cornelia Caragea, Doina Caragea, Andrea Tapia, Shane Halse <br><br> 181 (F) (<mark>Remote</mark>) - Online Mentioning Behavior during Hurricane Sandy: References, Recommendations, and Rebroadcasts – Apoorva Chauhan, **Amanda Lee Hughes** | 272 (S) - Adoption of big data in crisis management toward a better support in decision-making <br> Audrey Fertier, Aurélie Montarnal, Anne-Marie Barthe-Delanoë, Sébastien Truptil, **Frédérick Bénében** <br><br> 284 (S) (<mark>Remote</mark>) - Communication and Tracking Ontology Development for Civilians Disaster Assistance <br> **Mohd Khairul Azmi Hassan**, Yun-Heh Chen-Burger <br><br> 200 (S) (<mark>Remote</mark>) - Sensors-based Crisis Response and Management for Mass Gatherings: A Case of Hajj <br> **Yasir Javed** <br><br> 271 (S) - Leveraging OpenStreetMap to support flood risk management: A prototype decision support system for the identification of critical infrastructure | 161 (F) - A multidisciplinary perspective on supporting community disaster resilience in Nepal <br> Hossein Baharmand, Kees Boersma, Kenny Meesters, Femke Mulder, **Jeroen Wolbers** <br><br> 203 (S) - Dryhootch Quick Reaction Force: Collaborative Information Design to Prevent Crisis in Military Veterans <br> **Zeno Franco**, Katinka Hooyer, Rizwana Rizia, A B M Kowser Patwary, Mathew Armstrong, Bryan Semaan, Craig Kuziemsky, Bob Curry, Sheikh Ahamed <br><br> 232 (S) - A qualitative analysis of the early warning decision-making process in disaster management <br> **Flávio Horita**, João Porto de Albuquerque, Victor Marchezini, Eduardo M. Mendiondo, | **Moderator: João Porto de Albuquerque (University of Warwick)** <br><br> **Panelists**: Prof. Xinheng (Henry) Wang (University of the West of Scotland) Eduardo Mario Mendiondo (CEMADEN-National Centre for Early Warning in Brazil and University of Sao Paulo) Christian Webersik (University of Agder) |

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| | | **Melanie Eckle**, João Porto de Albuquerque, Benjamin Herfort, Alexander Zipf, Rüdiger Wolff, Richard Leiner, Clemens Jacobs<br><br>222 (S) - Towards a Monitoring System for American IFRC Logistics Network<br>**Laura Laguna Salvadó**, Matthieu Lauras, Tina Comes, Mathieu Grenade | 281 (S) - Design of an Immersive Online Crisis Preparation Learning Environment<br>**Liz Bacon**, Lachlan MacKinnon, Avgoustinos Filippoupolitis, David Kananda (<mark>also a demo</mark>) | |
| **12:30—14:00** | | | Lunch on your own | |
| | Parati 1 | Buzios | Angra | Parati 2-3 |
| | **SMS 2**<br>**Situated Use of Social Media in Crisis**<br>**Moderator: Emma Potter** | **IDSS 2**<br><br>**Moderator: Matthieu Lauras** | **PCCE 2**<br><br>**Moderator: Zeno Franco** | **ELSI 1**<br><br>**Moderator: Lisa Wood** |
| **14:00-15:30**<br>**Monday**<br>**Session 2** | 179 (F) - Eyes on the Ground: Emerging Practices in Periscope Use during Crisis Events<br>Elodie Fichet, **John Robinson**, Dharma Dailey, Kate Starbird<br><br>204 (S) (<mark>Remote</mark>) - Small Businesses and Social Media Usage in the 2013 Colorado Floods<br>Li Yuhong, **Christopher Zobel**<br><br>237 (S) (<mark>Remote</mark>) - Post-disaster Situational Analysis from WhatsApp Group Chats of Emergency Response Providers<br>**Pragna Debnath**, Saniul Haque, Somprakash Bandyopadhyay, Siuli Roy<br><br>266 (F) - #geiger 2: Developing Guidelines for Radiation Measurements Sharing on Social Media<br>Antonin Segault, **Federico Tajariol**, Yang Ishigaki, Ioan Roxin | 157 (F) - Early-Warning System Perception: a Case Study on Fire Safety<br>**Maude Arru**, Brice Mayag, Elsa Negre<br><br>201 (F) - Decision Support for Networked Crisis & Disaster Management in Europe – a Comparison with the Air Traffic Management Domain<br>**Christian Flachberger**, Eduard Gringinger<br><br>174 (S) - A study on the sub-regionalization of Humanitarian Supply Chain: the IFRC case<br>Laura Laguna Salvadó, **Matthieu Lauras**, Tina Comes, Mathieu Grenade<br><br>279 (S) - A dynamic perspective of emerging coordination clusters in crisis response networks<br>Kees Boersma, Nadia Noori, Xavier Cardona Vilasisi, **Jeroen Wolbers** | 228 (S) - Crowdtasking: Field Study on a Crowdsourcing Alternative<br>**Daniel Auferbauer**, Roman Ganhör, Hilda Tellioğlu, Jasmin Pielorz<br><br>247 (S) Interaction with citizens experiments: from context-aware alerting to crowdtasking<br>**Denis Havlik**, Jasmin Pielorz, Adam Widera (<mark>also a demo</mark>)<br><br>230 (S) - Using Semi-professionals in Emergency Response<br>**Tobias Andersson Granberg**, Niklas Danielsson, Anna Fredriksson, Johan Nordstrom, Sofie Pilemalm, Richard Tjernstrom, Kayvan Yosefi Mojir<br><br>259 (S) - Are you Ready2Help? Dilemmas in organizing citizen response to disaster<br>**Arjen Schmidt**, Jeroen Wolbers, Kees Boersma, Julie Ferguson, Peter Groenwegen<br><br>276 (S) - Three Lessons from Aurorasaurus about Public Facing Information System Design<br>Nicolas Lalone, **Andrea Tapia** | 255 (S) - A Mobilities Approach to Understanding Emergency Management Information Systems (EMIS) in Maintaining Organizational Identity and Belonging in Paramedic Work<br>**Lisa Wood**<br><br>243 (S) - It's more important to be fast than to be informed - Gender, age, disability and ethnicity in relation to IT in the Swedish Rescue Services<br>Johanna Linda Mathild Sefyrin, **Sofie Pilemalm**<br><br>282 (S) (<mark>Remote</mark>) - ELSI Guidelines for Networked Collaboration and Information Exchange in PPDR and Risk Governance **Monika Büscher**, Katrina Petersen, Catherine Easton, Xaroula Kerasidou, Olivier Paterour, Rachel Oliphant<br><br>300 (S) - An analysis on the role of trust in digital humanitarian actor networks<br>**John Sabou**, Simeon Vidolov<br><br>242 (S) - The FLUIDE Framework for Specifying Emergency Response User Interfaces<br>**Erik G. Nilsson**, Ketil Stølen |
| **15:30—16:00**<br>**Coffee Break** | | | Coffee Break - Foyer | |

|  | Parati 1 | Buzios | Angra | Parati 2-3 |
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|  | **SMS 3**<br>**Classifying Crisis Social Media Content**<br>**Moderator: Jennings Anderson** | **ET: Communication and Sharing**<br><br>**Moderator:** | **CCS 1**<br><br>**Moderator: Björn JE Johansson** | **ELSI 2**<br><br>**Moderator: Catherine Easton** |
| **16:00—17:30**<br>**Monday**<br>**Session 3** | 149 (F) - Mining and Classifying Image Posts on Social Media to Analyse Fires<br>Shannon Daly, **James Allan Thom**<br><br>152 (F) - Cross-Language Domain Adaptation for Classifying Crisis-Related Short Messages<br>**Muhammad Imran**, Prasenjit Mitra, Jaideep Srivastava<br><br>206 (S) (<mark>Remote</mark>) - Identifying Informative Messages in Disasters using Convolutional Neural Networks<br>**Cornelia Caragea**, Adrian Silvescu, Andrea Tapia | 287 (S) - Communication Channels among the various roles during Crisis Response<br>**Danilo Freitas**, Marcos Borges, Adriana Vivacqua, Paulo Victor Carvalho<br><br>288 (S) (<mark>Remote</mark>) - Power as driver of inter-organizational information sharing in crises<br>Martina Comes, **Anouck Virginie Adrot**<br><br>273 (S) - An Emotional Step Towards Automated Trust Detection in Crisis Social Media<br>Shane Errol Halse, **Andrea Tapia**, Anna Squicciarini, Cornelia Caragea<br><br>285 (S) - Diffusing Crisis Management Solutions through Living Labs: Opportunities and Challenges<br>**Bjørn Erik Munkvold** | 205 (S) - Learning from C2 Situations in the Field – Identifying Lessons from a Major Forest Fire in Sweden<br>**Jenny Elisabeth Marklund**, Cecilia Hull Wiklund<br><br>210 (S) - Once upon a time in Västmanland – the power of narratives or how the "truth" unfolds<br>Christian Uhr, Björn J E Johansson, Jonas Landgren, **Martin Holmberg**, Fredrik Bynander, Samuel Koelega, Jiri Trnka<br><br>208 (S) (<mark>Remote</mark>) - Inquiry in control rooms – an analysis through the lenses of space, time and practices<br>**Valerie November**, Laurence Creton-Cazanave<br><br>192 (S) - Resilience through training – assessing cognition in teams<br>Peter Berggren**, Björn JE Johansson**, Ellen Ekström | 301 (S) (<mark>Remote</mark>) - Experimenting with the Ethical Impact Assessment as a Grounded Socio-Technical Practice<br>**Katrina Petersen**, Rachel Oliphant, Monika Buscher<br><br>245 (S) - Crisis in a Foreign Language: Emergency Services and Limited English Populations<br>**Amirah Marie Majid**, Emma Spiro<br><br>275 (S) - Information Systems for Crisis Response and Management: The EU Data Protection Regulation, Privacy by Design and Certification<br>**Catherine Easton**<br><br>286 (S) - Humanitarian Effectiveness: Reconsidering the Ethics of Community Engagement and the Role of Technology<br>**Ajay Kumar**, Simeon Vidolov<br><br>241 (S) - Evaluating Plans and Human Response Using a Normative Multi-Agent System<br>Lauren Thévin, **Julie Dugdale**, Olivier Boissier, Catherine Garbay, |

| San Pedro | | | |
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| **Doctoral Colloquium Poster** | | **Poster Session** | **Demo Session** |

| **17:30—20:30**<br>**Monday**<br>**São Pedro**<br><br>**W**<br>**E**<br>**L**<br>**C**<br>**O**<br>**M** | **Coordinators: Fiona McNeill and Brian Tomaszewski**<br><br>**DC1** – Harnessing the power of social media to predict mass crisis events<br>**Polly College – Drexel University**<br><br>**DC2 -** A Decision Support System for enhancing sustainable humanitarian supply chain operations<br>**Laura Laguna - University of Toulouse**<br><br>**DC3 -** Mediation Between Response Organisations and Civil Society in Crisis and Disaster Management | **Coordinator: Adriana S. Vivacqua**<br><br>189 (P) - Disaster risk indicators in Brazil: a case study in Rio Grande do Norte State<br>**Lutiane Queiroz de Almeida**, Eugênio, Josiane Rodrigues, França, Vinnícius Vale Dionízio França<br><br>195 (P) (<mark>Remote</mark>) - Simulator and Game-based Multi-level Training of Cognitive Skills and EMS Teamwork in Multi-casualty Incident Management<br>**Avi Parush**, Adva Springer, Ruth Livkind, Shani Laendler, Tal Solomon, Alex Nicola, Ksenia Kaganer | **Coordinators: José H. Canós and Sergio Ochoa**<br><br>**All demos are originated from papers presented at the conference. A demo of a related tool will be presented at the demo session.**<br><br>281 (S) - The Pandora⁺ Crisis Training System<br>**Liz Bacon**, Lachlan MacKinnon, Avgoustinos Filippoupolitis, David Kananda.<br><br>313 (P) - SDI-Node to interlink Information, |

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| **E**<br>**R**<br>**E**<br>**C**<br>**E**<br>**P**<br>**T**<br>**I**<br>**O**<br>**N** | **Daniel Auferbauer - Austrian Institute of Technology**<br><br>**DC4 -** A total quality framework for the assessment and improvement of emergency plans management<br>**Ana Gabriela Nuñez Avila - Universitat Politècnica de València**<br><br>**DC5** - Organisational change in emergency management: Competing understandings about the purpose and uses of social media'<br>**Emma Potter - Queensland University of Technology**<br><br>**DC6**- A systematic approach for collaborative mapping in disaster management<br>**Roberto Rocha - University of São Paulo**<br><br>**DC7** - Data fusion of volunteered geographic information and hydrological sensors for monitoring and early warning of flash floods<br>**Sidgley Camargo de Andrade - University of São Paulo** | 209 (P) - A community ergonomics framework for the development of early warning systems<br>Jane Ciambele S. da Silva, Alyson Matheus C. Souza, Ademir Bezerra Silva Júnior, Ricardo Matos de Carvalho, Pitágoras José Bindé, Liam Bannon, **Paulo Victor Carvalho**<br><br>212 (P) (<mark>Remote</mark>) Urban pluvial flood risk assessment based on scenario simulation<br>*Boni Su,* Hong Huang, Zhiqiang Wang, Nan Zhang, Wei Zhu, Xinfeng Wei,<br><br>236 (P) - Computer-based scheme-making system of emergency maintenance for failure of oil and gas pipeline<br>Xia Wu, **Yi Xiong**,<br><br>246 (P) - Evaluation of emergency protocols using agent-based approach<br>**Christophe Viavattene**, Simon McCarthy, Michelle Ferri, Martina Monego, Maurizio Mazzoleni,<br><br>250 (P) (<mark>Remote</mark>) - IT manager leadership during crisis situations: Lessons from real-life crisis management in IT functions during natural disasters<br>**Tommi Juhani Tapanainen**, Olivier Lisein<br><br>260 (P)-(<mark>Remote</mark>) - Decision Graphs: Managing Decisions for Emergencies<br>**Suvodeep Mazumdar**<br><br>265 (P) - Effect of Daytime on the Efficiency of Population Alerts via Short Messages and E-Mails<br>**Michael Klafft**<br><br>292 (P) - Improving the credibility of unreliable information through static images and data mining: an experimental study to identify floods<br>**Sidgley Camargo de Andrade**, João Porto de Albuquerque, Alexandre Cláudio Botazzo Delbem,<br><br>293 (P) - Data Interoperability Approach during Major Accidents<br>**Emil Gatial**, Zoltan Balogh, Ladislav Hluchy<br><br>303 (P) - Firefighting emergency response exercise – an analysis of standardization and resilience<br>Gilbert Huber, **Angela Righi**,, José Orlando Gomes;, Paulo Victor Rodrigues de Carvalho, Caio Lemos, Kézia Emydgio,<br><br>305 (P) – (<mark>Remote</mark>) - A Prototype Development of Assurance Cases Tool and Experiments on SNS Discussion of Radiation Disaster<br>Ishigaki, Yang; **Matsuno, Yutaka**; Bando, Koichi; Tanaka, Kenji<br><br>312 (P) - More Research Needed on the Concurrent Usage of Information Systems during Emergencies | essential for Disaster Preparedness and Management, with other Linked Open Data<br>**Werner Leyh**, Maria Clara Fava, Narumi Abe, Camilo Restrepo Estrada, Flavio Horita, Eduardo Mario Mendiondo, João Porto de Albuquerque<br><br>291 (S) - A Conceptual Architecture to handle the influx of information in Emergency Situations<br>**Bruno S Nascimento**, Adriana S. Vivacqua, Marcos R.S. Borges<br><br>247 (S) Interaction with citizens experiments: from context-aware alerting to crowdtasking<br>**Denis Havlik**, Jasmin Pielorz, Adam Widera |

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| | **Steve Peterson**<br><br>313 (P) - SDI-Node to interlink Information, essential for Disaster Preparedness and Management, with other Linked Open Data<br>**Werner Leyh**, Maria Clara Fava, Narumi Abe, Camilo Restrepo Estrada, Flavio Horita, Eduardo Mario Mendiondo, João Porto de Albuquerque (<mark>also a demo</mark>) | |

| ISCRAM 2016 Program |
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| **TUESDAY** |

| | Parati 1-2-3 |
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| **9:00-10:30 Tuesday Keynote 2** | **Mario Jorge Freitas, Ph.D., Santa Catarina State University**<br>**The failures in preparation and response in Mariana's mining waste disaster: some lessons for the future**<br><br>The rupture of Fundão's dam mining waste (Mariana, MG) in the afternoon of 5th November 2015 was a tragic event. According to the Bowker Associates Science & Research in the Public Interest, Mariana's disaster is the bigger worldwide event of this kind in terms of volume of waste and distance covered. His severe impact reached not only the communities lying around, but also cities and villages located on the borders of Doce River up to its mouth in the coast of ES state. Some of them, like Bento Rodrigues and Paracatu de Baixo, were completely destroyed. The environmental impacts were also brutal, namely in Doce River ecosystem and coastal protected areas near River Doce mouth. There are a lot of questions without answer namely those about the causes of the event. In this talk however we will focus on the failures of preparation, early warning and disaster response. Based on our field research held 15 days after the disaster we will present and discuss what we call by perceptual spots of people directly affected by the disaster, members of Civil Defense and Protection staff and SAMARCO´s directors and staff. We will try to identify some critical failures and problems related with preparation and response. We will also discuss the relationship between disasters and inadequate options of development, highlighting the critical importance of social participation in disaster risk management and in achieving more safe and resilient communities. We make some considerations about the future of a Regulatory Mining Framework in direct relationship with Sendai framework and the role of Information Systems for Crisis Response and Management. |

| **10:30-11:00** | Coffee Break - Foyer |
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| | Parati 1-2 | Buzios | Angra | Parati 3 |
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| **11:00-12:30 Tuesday Session 1** | **SMS 4**<br>**The Role of Social Media in Crisis**<br>**Moderator: Muhammad Imran** | **ET: Emergency Management**<br><br>**Moderator: Kathleen Moore** | **CCS 2**<br><br>**Moderator: Peter Berggren** | **PFRS 1**<br>**Emergency Preparedness in South America**<br>**Moderator: João Porto Alburquerque** |
| | 145 (F) - Balancing conflicting operational and communications priorities: social media use in an emergency management organization<br>**Emma Jean Potter**<br><br>289 (S) (Remote) - Examining the Role of Social Media in Disaster Management from an Attribution Theory Perspective<br>**Louis Ngamassi**, Thiagarajan Ramakrishnan, Shahedur Rahman<br><br>225 (S) - Social Media and Disasters: A New Conceptual Framework<br>**Briony Jennifer Gray** | 129 (F) - Curriculum Guidelines for Master's Level Programs in Information Systems for Emergency Management<br>Linda Plotnick, Murray Turoff, Roxanne Starr Hiltz, **Lili Yang**, Victor Amadeos Banuls Silvera<br><br>261 (S) - Poll Sourcing for Crisis Response<br>**Zoltán Balogh**, Emil Gatial, Ladislav Hluchý<br><br>307 (S) - A Novel Framework for Security Enforcement in Networks for Disaster and Crisis Management<br>**Vladimir Oleshchuk** | 257 (S) - Measurement of information flows in rescue exercises in the aftermath of the collapse of a building Andreas Lotter, Konrad Barth, Brauner Florian, Florian Steyer, **Ompe Aime Mudimu**, Alex Lechleuthner<br><br>291 (S) - A Conceptual Architecture to handle the influx of information in Emergency Situations<br>**Bruno S Nascimento**, Adriana S. Vivacqua, Marcos R.S. Borges (<mark>also a demo</mark>)<br><br>253 (S) Observing Sensemaking in C2: | 131 (F) - A methodological proposal to Disaster Risk Indicators in Brazil<br>**Lutiane Queiroz de Almeida**<br><br>296 (S) (<mark>Remote</mark>) - Towards a Monitoring and Follow Up System for the Costa Rican Risk Management System<br>Oscar Durán, **Edward Ruiz**, Catalina Esquivel<br><br>191 (S) - Assessment team decision-making: One way to assess the multi-criteria decision-making based on observation |

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| | Parati 1 | Buzios | Angra | Parati 2-3 |
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| | | | Performance Assessments in Multi-Organizational Crisis Response **Nicoletta Baroutsi** | **Roberto Ferreira Júnior**, Paulo Victor Rodrigues de Carvalho, José Orlando Gomes, Salman Nazir, Gilbert Jacob Huber |
| | | | 186 (S) - Preliminary Validation Results of DigEmergo for Surge Capacity Management **Jonas Rybing**, Johan Larsson, Carl-Oscar Jonson, Erik Prytz | 306 (S) (Remote) - Towards reliable recurrent disaster forecast methods: Peruvian earthquake case **Jonatan Edward Rojas Polo**, Jorge Vargas, Alejandra Inga, Wilder Mantilla, Hulber Añasco, Melanie Basurto, Ricardo Campos, Jonathan Sánchez, Paula Inés Checa |
| | | | 262 (S) (Remote) - Seeing through the Eyes of the Citizens during Emergencies **Suvodeep Mazumdar** | |
| **12:30- 14:00** | Lunch on your own | | | |
| | Parati 1 | Buzios | Angra | Parati 2-3 |
| **14:00-15:30 Tuesday Session 2** | **PANEL 2: Hot Topic Discussion ZIKA Virus Moderator: Claudia Osório – ENSP - FIOCRUZ**  **Discussants:** | **GIS 1 Data of the people, by the people, for the people Moderator: Sergio Freire** | **AMS 1**  **Moderator: Michael Bartolacci** | **PFRS 2 Methodological Solutions Moderator: Julie Dudgale** |
| | | 127 (F) - A Software Architecture to Integrate Sensor and Volunteered Geographic Information for Flood Risk Management **Raul Eduardo Simoni Castanhari**, Roberto dos Santos Rocha, Sidgley Camargo Andrade, João Porto Albuquerque,  138 (F) - Risk Awareness Maps of Urban Flooding via OSM Field Papers- Case Study Santiago de Chile **Carolin Klonner**, Sabrina Marx, Tomás Usón, Bernhard Höfle  182 (F) - Crowdsourced Validation and Updating of Dynamic OSM Features: A Nepal Earthquake Case Study Johannes Anhorn, **Benjamin Herfort**, João Porto de Albuquerque | 147 (F) - Wide-area Evacuation Difficulty in Densely-built Wooden Residential Areas **Takuya Oki**, Toshihiro Osaragi  188 (F) - Topological structure vulnerability assessment of Shanghai Urban Metro Networks Haitao Sun, **Zhiru Wang**, Guofeng Su  199 (F) - Numerical Study of Radioactive Pollutants dispersion in Radioactive "Dirty Bomb" Events **Tongshen Zheng**, Shunjiang Ni, Shifei Shen, Yan Wang, Yang Tai  240 (S) - Dynamic, data-driven optimization of solar powered charging kiosks for crisis response **Daniel Patrick Iland**, Elizabeth Belding | 139 (F) - Modeling Dynamics of Disruptive Events for Impact Analysis in Networked Critical Infrastructures **Elisa Canzani**  220 (S) - INDRA model: for a better assessment of coastal events disruptions **Christophe Viavattene**, Sally Priest, Damon Owen, Dennis Parker, Paula Micou, Sophie Ly  218 (S) - Research on target diversity and risk analysis model of terrorist attack **YiTing Zheng**, JianGuo Chen; WenJie Tang, JiaXiang Xu**l** |
| **15:30- 16:00** | Coffee Break - Foyer | | | |
| | Parati 1 | Buzios | Angra | Parati 2-3 |
| | | **GIS 2 The new call of GISc Moderator: Brian Tomaszewski** | **Panel 3:**  **Hot Topic: Refugee Crisis** | **PFRS 3 Technological Solutions Moderator: Julie Dudgale** |
| **16:00- 17:30 Tuesday Session 3** | | 156 (F) - Crisis Response Serious Spatial Thinking Games: Spatial Think Aloud Study Results **Brian Tomaszewski**, David Schwartz, Joerg | | 162 (F) - QuEP: Building a Continuous Improvement of Emergency Plans Management **Ana Gabriela Núñez Avila**, Mª Carmen |

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| | | Szarzynski<br><br>193 (F) - Automatic mapping of areas presenting specific risks linked to buried technical networks for firefighters<br>**Amélie Grangeat**, Floriane Brill, Stephane Raclot, Emmanuel Lapebie<br><br>226 (S) - (Remote) Application "Pomoc" – emergency calls with geo-location<br>**Anna Stachowicz**, Marcin Przybyszewski | | Penadés Gramaje, José HilarioCanós Cerdá<br><br>252 (S) - Sudden cardiac arrest and the role of crowd tasking apps for risk mitigation<br>**Simone Wurster**, Michael Klafft, Frank Fiedrich, Andreas Bohn<br><br>140 (S) (Remote) - Assessing the Security of Buildings: A Virtual Studio Solution<br>**Alexandre Ahmad**, Olivier Balet, Arjen Boin, Julien Castet, Maureen Donnelley, Fabio Ganovelli, George Kokkinis, Giovanni Pintore |
| **17:30- 19:00** | **ISCRAM Business Meeting** | | | |
| **19:00- 23:00 Conference Banquet** | **Churrascaria Fogo de Chão**<br>**Buses from and to the Conference hotel will be provided**<br>**First bus leave at 19:00 – Last bus leave at 23:00** | | | |

| WEDNESDAY | | | | |
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| | Parati 1-2-3 | | | |
| **9:00-10:30**<br>**Keynote** | **Muhammad Imran, Ph.D., Scientist, Qatar Computing Research Institute, Hamad bin Khalifa University**<br>**The Role of Social Media and Artificial Intelligence for Disaster Response**<br><br>Social Media platforms such as Twitter are invaluable sources of time-critical information. Information on social media communicated during emergencies convey timely, actionable information. For rapid crisis response, real-time insights are important for emergency responders. Although, many humanitarian organizations would like to use this information, however they struggle due a number of issues such as information overload, information vagueness, less credible and misinformation. In this talk, I will describe the role of social media and potential artificial intelligence computational techniques useful for humanitarian organizations and decision makers to make sense of social media data for rapid crisis response. | | | |
| **10:30-11:00** | **Coffee Break - Foyer** | | | |
| | Parati 2-3 | Buzios | Angra | Parati 1 |
| | **SMS 5**<br>**Understanding & Moderating Crisis Social Media Data**<br>**Moderator: James Thom** | **GIS 3**<br>**Crises, maps & beyond**<br>**Moderator:** | **AMS2**<br><br>**Moderator: Michael Bartolacci** | **PFRS 4**<br>**International Case Studies**<br>**Moderator: Julie Dudgale** |
| **11:00-12:30**<br>**Wednesday**<br>**Session 1** | 169 (F) - A Human-is-the-Loop Approach for Semi-Automated Content Moderation<br>**Daniel Link**, Bernd Hellingrath, Jie Ling<br><br>221 (S) (Remote) - Research on Public Opinion Propagation in Micro-Blogging Based on Epidemic Models<br>Jidi Zhao, **Linlin Wang**<br><br>254 (S) (Remote) - Tweet Factors Influencing Trust and Usefulness During Both Man-Made and Natural Disasters<br>**Shane Errol Halse**, Andrea Tapia, Anna Squicciarini, Cornelia Caragea | 136 (F) - Estimation of Transient Occupants on Weekdays and Holidays for Risk Exposure Analysis<br>**Toshihiro Osaragi**<br><br>256 (S) - New Multi-temporal Global Population Grids – Application to Volcanism<br>**Sergio C. Freire**, Aneta Florczyk, Martino Pesaresi<br><br>213 (S) - Resource Management System for Crisis Response & Management<br>**Peng Du, Jianguo Chen**, Zhanhui Sun<br><br>290 (S) - Being specific about geographic information crowdsourcing: a typology and analysis of the Missing Maps project in South Kivu<br>Benjamin Herfort, Melanie Eckle, **João Porto de Albuquerque** | 160 (F) (Remote) - Validating Cross-Impact Analysis in Project Risk Management<br>Victor Amadeo Bañuls Silvera,; Cristina López Vargas, Fernando Tejedor Pachón, Murray Turoff, **Miguel Ramírez de la Huerga**<br><br>196 (F) - A Network Interdiction Perspective for Providing Emergency Communications: An Analysis for Promoting Resiliency Subject to Resource Constraints and Security Concerns<br>**Michael R. Bartolacci**, Stanko Dimitrov<br><br>211 (S) - Analysis of emergency response for accident of oil and gas pipeline based on Stochastic Petri Net<br>Xiong Yi, Weiping Si, **Xia Wu**<br><br>231 (S) - Modeling the Operator Functional State for Emergency Response Management<br>Mark Parent, Jean-François Gagnon, **Tiago H. Falk**, Sébastien Tremblay | 214 (S) - A Capital Model for Disaster Resilience<br>**Jose J Gonzalez** , Mihoko Sakurai, Richard T. Watson, Jiro Kokuryo<br><br>269 (S) - How Volunteered Geographic Information can be integrated into emergency management practice? First lessons learned from an urban fire simulation in the city of Coimbra<br>**João Porto de Albuquerque**, Cidália Fonte, José Paulo Almeida, Alberto Cardoso<br><br>294 (S) - Retrospective analysis of the EU resilience to a large-scale migration<br>**Marian Zulean**, Gabriela Prelipcean, Costinel Anuta<br><br>270 (S) (Remote) - Risk zoning of urban shelter in earthquake<br>**Yang Gao**<br><br>185 (S) (Remote) - Are You Ready for Mega Disasters? Study on Japanese People's Disaster Consciousness Before and After the Great East Japan Earthquake<br>**Yiwei Li**, Y Guo |
| **12:30-1:30**<br>**Wednesday** | **Closing Session** | | | |