ISCRAM NEWSLETTER

Vol 1 No 4 December 2011

Happy New Year!

Firstly, a very Happy New Year from the Newsletter Team and the ISCRAM Board. This is the last Newsletter of 2011 and yes it is a few days late, but that lets it span the years, looking back on a successful year of ISCRAM activities and towards an even more active 2012. As you will see from many of the articles and announcements below, we have a busy year in front of us.

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Responding to the Survey

The Membership and Member Services Committee took on two major strands of work last year. The first to improve the membership application and renewal processes has had its effect behind the scenes and you should have got a swifter response when renewing your membership this month. [*Hint: there is a subliminal reminder there!!!*] The second was to survey the membership and attendees at ISCRAM conferences and summer schools to see what ISCRAM could and should be providing in the way of services and meetings. What would make membership of ISCRAM more valuable, a 'must-have' for the community?

Accordingly we prepared a questionnaire and circulated it widely on the ISCRAM mailing

For details of the upcoming ISCRAM Summer School, see page 5

lists. We wanted to find out not only what had persuaded current members to join, but also why others who came to our conferences and summer schools had chosen not to. Off went the emails with a request to respond by mid-November; and cynical Simon made a silent bet that we would be lucky to get 100 responses. Was he wrong! We were delighted to receive over 240 responses. Moreover, not only had the 'tick box' Likert questions been answered, but the open ones had elicited a substantial number of pertinent and thoughtful comments, ideas and suggestions. Thank you to all who responded. We really are very grateful. We have a wealth of data and information on which to build and shape ISCRAM's offerings to its members.

So what did we learn? First, some general observations:

- Our community is made up of around 63% academic/researchers and around 20% engineers/scientist, with the remainder drawn from emergency planners, responders, NGOs, etc. Practitioners and policy makers actually represent a small percentage, around 6% and 3% respectively.
- Most members (88%) joined ISCRAM to be part of the ISCRAM community or to support the ISCRAM community (46%).
- Being a member of ISCRAM is closely associated with two points.
  - The first is the main ISCRAM Conference (51% of people do not join if they are not planning to go to the conference that year).
  - The second is access to relevant information: e.g. lists of on-going projects, articles, funding/research opportunities, emails about events, Newsletter. Generally across the rating of ISCRAM benefits, the higher scoring items were all related to having access to information.
- When asked about why people did not join ISCRAM in 2011,
  - 24% said they did not know about the ISCRAM Association;
  - 24.7% said it was too expensive;
  - 51.3% said they were not planning on going to the conference.
  - Other reasons given:
    - not their core area (6 replies),
    - too busy (4 replies),
    - cannot afford it (5 replies),
    - ISCRAM membership procedures were too complicated (3 replies).
    - 9 people thought the benefits weren't obvious or clear

We ran a number of ANOVAs to see if there were differences in the perceptions of the importance of benefits between current members and non-members (and those who were not sure of their membership status). There were few significant differences. Where there were differences, Tukey's tests were run to see where the results lay. The following are the results:

- Being on an email list with updates and information about events in the domain of crisis management was significantly more important to current members than to either non-members or those unsure of membership status.
- Access to a list of current funding opportunities was significantly more important to current members than to non-members and those unsure of membership status. It was also significantly more important to those unsure of membership status than those who are not members.
- Voting privileges at member meetings and for the election of the Board was significantly more important to members than to non-members and those unsure of membership status, though this is not a highly important benefit for anyone.
- Receiving the ISCRAM letter by email was significantly more important to members than to either non-members or to those who were not sure of their membership status.

How are we using this information? Firstly, we are developing the Newsletter further to provide more networking of relevant information. Some will be clear in the following pages. For next year's issues there will be larger team with sub-editors for conference and special issue calls, finding opportunities, recent articles, news of members, successful PhD defences, etc. There will also be articles about some of our members' institutes and projects and interviews with some of ISCRAM's founding members. There is a new education column: how should ISCRAM related topics be taught?

Secondly, we are developing a list of proposals for additional ISCRAM benefits and activities to take to the ISCRAM board early in 2012. Some of the suggestions offered in the survey have been very catalytic in this. Thirdly, as the board develops ISCRAM overall strategy, knowledge of the balance of researchers, engineers and practitioners has implications for who we cater to and how we are seen by the wider crisis community, and also how we position ourselves in this wider community. Above all, ISCRAM will become clearly more than its conference. Look below

and you will see plans for ISCRAM2012 certainly; but there is a call for the 2012 Summer School and news of ISCRAM-Asia to be held in Beijing in October. And that is just the beginning.

Julie Dugdale, Simon French,
Linda Plotnick
Membership and Member
Services Committee

ISCRAM China

The 5th ISCRAM-CHINA conference took place in Harbin, China from November 25 and 26. In the blistering cold – at least that is how the minus 12 degrees felt to me during the first day of the conference – more than 100 participants were welcomed by Professor Song Yan and her co-workers for another excellent conference programme. The first day and a half of the conference consisted of invited keynote presentations by ISCRAM scholars from Europe and South-East Asia. Professors Woflgang Raskob (who is also the conference chair for ISCRAM2013 in Germany), Gerhard Wickler (ISCRAM Secretary), Nadia Papamichail and Lili Yang presented their research to the audience in the packed conference room. The focus of most presentations was on nuclear emergency management, and of course we paid a lot of attention to the recent Fukushima disaster. Professors Wang from the Chinese Earthquake Administration, Ping from Taiwan and Lee from Korea added their perspective to this impressive day. The final half day of the conference was reserved for presentations by the participants, in four parallel sessions, leading to an intense exchange of information and knowledge.

The conference also marked the end of an era. On five consecutive occasions, the ISCRAM-CHINA conference has been organized in Harbin at the Harbin Engineering University (HEU) by Professor Song Yan. ISCRAM has always been very fortunate to enjoy her support, as well as the support from Dean Li (2006-2009) and Dean Zhang (2010-2011) from the School of Management at HEU. The ISCRAM association is very grateful for the opportunities this team has created and supported over the years. Following these highly successful conferences, we have decided to move the conference to Beijing, where it will be hosted by the prestigious Tsinghua University, in particular by Professor Zhang from the Public Security Department. The name of the conference will also be changed to **ISCRAM-ASIA**, to reflect the ambition we have of growing the conference into a true Asian meeting. The meeting will be held in October 2012, so keep your eyes open to the publication of the call for papers to be issued in January 2012. We are looking forward to seeing you there!

Bartel Van de Walle

Renew your membership!

2012 has begun so it is time to renew your ISCRAM membership – or to join! Being a member of ISCRAM brings significant reductions on ISCRAM related activities, such as the annual ISCRAM Conference, ISCRAM China (now ISCRAM Asia) and the Summer School; and brings you into contact with a network of researchers and practitioners in crisis management. Next year membership benefits will be further increased and a special focus will be given on providing you with relevant information related to what's happening in our domain (jobs, relevant conferences, funding opportunities, etc.)

Fees has been held for 2012 at 2011 levels:

Individual	€90
Individual (Reduced Rate)	€40
Student	€40
Student (Reduced Rate)	€20
Institutional	€900
Institutional (Reduced Rate)	€300
Small Businesses	€300
Small Businesses (Reduced Rate)	€100

To register and pay your membership dues, go to:

http://iscram.org/index.php?option=content&task=view&id=2418&Itemid=2

[Full details on eligibility for the reduced rate are given there.]

ISCRAM 2012

9th International Conference on Information Systems for Crisis Response and Management

Integrative and Analytical Approaches to Crisis Response and Emergency Management Information Systems

Vancouver, Canada. April 22nd to 25th 2012

www.iscram.org/iscram2012

We are less than four months away from meeting again for our 9th annual conference in beautiful Vancouver, Canada. The conference organizing team and track chairs are working hard to make it a rich and unique experience for all of our attendees. We have several highlights that we want to share with you about how ISCRAM 2012 is now taking shape.

Programme

Established tracks will continue during 2012 and emerging tracks, such as: health care crisis management, wireless sensor networks for emergency response, and serious games for crisis management, will be introduced for the first time. We are pleased to announce four special sessions that are being co-sponsored by different tracks, among them: the Mixed Methods and Community Engagement in Crisis Management Research Special Session and the Agro-Terrorism Session. Some of the special sessions will be in workshop format to encourage participation and idea exchange. In addition to this, ISCRAM 2012 will host a distinguished panel discussing the future of ISCRAM research in a debate format – participants include Simon French, Julie Dugdale, Murray Turoff, Jonas Landgren and Bartel Van de Walle.

There will also be four engaging keynote speakers:

- Jack Pagotto, Head of the Emergency Management Systems and Interoperability programme at the Centre for Security Sciences, division of Defence Research and Development Canada.
- Howard Roy Williams, President and Chief Executive Officer of the Center for Humanitarian Cooperation.
- David Ebert, the Silicon Valley Professor of Electrical and Computer Engineering at Purdue University and Director of the Visualization Science team of the Department of Homeland Security's Command Control and Interoperability Center of Excellence.
- Juergen Beyerer, Professor of Interactive Real Time Systems at the KIT Karlsruhe and Head of the Fraunhofer-Institute of Optronics, System Technologies and Image Exploitation IOSB.

More information on the programme and the keynote speakers is available from our website: http://www.iscram.org/iscram2012.

Submissions

The deadline for full papers has already passed and we are thrilled to report that we received a large number of full paper submissions this year: 83 full papers!

There is still time to send your short papers, work-in-progress papers, practitioner reports, and poster submissions. The deadline for all of these submissions is *January 15, 2012*. We want to encourage you to re-post our call among your colleagues, students, and relevant networks.

Accommodation

Conference accommodations have been arranged at The Delta Suites Hotel, located directly beside, and internally connected to, the conference venue. Make your reservations early in order to enjoy the special conference rate, which is only offered until March 22, 2012. More information on accommodations and the link to make your reservations are available on our website: http://www.iscram.org/iscram2012.

Things to do in Vancouver

Late April in Vancouver is a spring celebration. Cherry blossoms adorn the city streets and Vancouverites hit the city streets, the iconic seawall and Stanley Park to roller blade, hike and bike. Coal Harbour and Stanley Park are just a few blocks from the

conference venue, and it is a short walk that will allow you to enjoy the amazing views of Burrard Inlet and the astounding mountains that surround the city.

If you want to enjoy the cultural offerings of the city, the Vancouver Art Gallery, Gastown, and Chinatown are walking distance from the conference venue. We also encourage you to experience Vancouver's great public transportation system and explore two of the city's landmarks: the UBC Museum of Anthropology and the unique Granville Island Market. If you are feeling more adventurous you could head to Whistler, a world famous ski resort, or you could take a nice ferry ride to Victoria, the capital of British Columbia. We are looking forward to seeing you in Vancouver and sharing with you everything that our city has to offer.

Brian Fisher
Leon Rothkrantz
Richard Arias
Zeno Franco
Jozef Ristvej

Education Column: How do we provide students and professionals with ISCRAM skills?

Since its beginning, one of ISCRAM's objectives has been to develop the next generation of ISCRAM researchers and practitioners. We have run doctoral colloquiums are most of our conferences and our Summer School is now well established. ISCRAM has a real interest in education, but an objective and its delivery are two different things.

Understanding the use of information systems in crisis response and management requires multi-disciplinary perspectives and a range of skills from the technical to the interpersonal. How do we help our students acquire them? I confess I have never taught ISCRAM material to undergraduate or masters students. I am not sure that I have any idea of how to structure a full course or programme to such students. I have been involved in several short Continued Professional Education courses and the ISCRAM Summer School. On those we tend to instil ideas and skills not though lectures, but by immersing the participants in an exercise, one that we can pause to draw out ideas and reflect on approaches. John Maule and I have explored how one designs such training courses for general crisis response and management issues (S. French and J. Maule (2010) 'Exploring and Communicating Risk: Scenario-based Workshops'. In Peter Bennett, Sir Kenneth Calman, Sarah Curtis, Denis Smith, Eds (2010) *Risk communication and public health*. 2nd Edn. Oxford University Press), 299-316). One trick we found is that the scenario on which the exercise is based, like a good crime novel, needs a twist or two to throw participants off track and make them revert to and reflect on first principles.

These are just a few random thoughts, but ones perhaps that justify the claim that we need to share and develop good practice in education of future 'ISCRAMers'. So the Newsletter will seek to maintain a regular column in which we discuss educational ideas and share practice. For the next issue I have invited Dr. Andrea Tapia of the College of Information Sciences and Technology at Penn State University to discuss how she designed a course in Crisis Informatics for her students there and then took this to Costa Rica to present in Spanish there. What imperatives drove her design and did these convert successfully across cultures. I also invite others to contribute their thinking.

Please send in your comments and thoughts for future columns. The topic needs discussion.

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ISCRAM Summer School 2012

Following the very successful Summer School of last summer, the first announcement of the 2012 ISCRAM Summer School is now out! The Summer School will again take place in Tilburg, the Netherlands, from August 15 to 24 2012. At the Summer School, we will discuss the role of social media in humanitarian crisis response and relief. Social Media experts from academia and practice will provide their experiences and views, looking back at recent humanitarian crises and reflecting on future use and impact.

The target audience for the 2012 ISCRAM Summer School is both *PhD students* and experienced *Practitioners*.

- *Students in PhD programmes* in Information Systems, Computer Science,

Organization Research, Management Science or in other fields with research interests related to (humanitarian) crisis management are eligible for nomination.
- *Practitioners and full-time professionals* active in the humanitarian sector. The Summer School is particularly interested in humanitarian practitioners with significant field experience looking for possible ways to improve their day-to-day practices through the use of frameworks that formalize and extend the practical competence they already possess.

To quote one of the participants of last year: "The ISCRAM summer school was one of the most encouraging things that happened during my doctoral studies. I got to meet people with the same interest in crisis management, either techies or people oriented, but all sharing this same passion. Gathering students, academics and professionals from everywhere, all driven "to make a difference", no wonder the atmosphere was just "AAA" and the exchanges were outstanding. I know it's sometimes hard to organize the time and money for a summer school during your PhD, but my advice is...fight for it, it's worth it! That's all I have to say about that :)"

The deadline for applications is April 2nd, 2012 and further details are available via www.iscram.org/live/summerschool2012.

Bartel Van de Walle

Research Networking

Have you an idea for developing a collaborative research project? If so, this section may be for you! Send us 3 or 4 paragraphs on your idea and contact details for other ISCRAM members who are interested in following up on the idea and working up a project proposal.

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News

The news section is a little more organised this issue with a number of sections: News of Members; Successful PhD Defences; Recent Publications; New Research Projects. Please send material for the next issue – and no need to limit yourself to just these four subheadings. We want your news and will, within the bounds of relevance to ISCRAM, create new subheadings as necessary. As always, send your submissions to simon.french@warwick.ac.uk.

News of Members

Valentine Bertsch will join KIT to head a research group on 'Distributed energy systems and energy transmission/distribution networks' at the Karlsruhe Institute of Technology (KIT). He is really looking forward to this and already started to discuss new project ideas combining risk research, decision support and robustness/bottlenecks of energy transmission and distribution grids.

Also at KIT, *Tina Comes* leads the research group on Risk Management at the Institute for Industrial Production (IIP). Her group develops and designs methods and models to analyse, assess and manage risks in the fields industrial production, critical infrastructures and supply chain management with a focus on decision support systems in crisis and emergency management, vulnerability analyses, comparison of transnational risk management systems, and tools for the visualisation and explanation of results.

The J. William Fulbright Scholarship Board and the Council for International Exchange of Scholars have selected *Andrea Hoplight Tapia*, Associate Professor of Information Sciences and Technology, at Penn State University as a Fulbright grantee to Costa Rica. Dr Tapia will travel to San Jose, Costa Rica with her family between January and July of 2012 as part of her sabbatical leave. Dr Tapia will partner with the Central American School of Geology, Department of Seismology, Vulcanology and Geophysical Research at the University of Costa Rica. In addition, Dr Tapia will be working with the international humanitarian relief and development organization World Vision. Dr Tapia will be conducting research entitled, Improving Emergency Preparedness and Response in Costa Rica through Law, Coordination and Technologies, in which she will determine the effects of a national-level legal mandate to coordinate and to share information upon the social and informational networks among the emergency response sector. Dr Tapia will also be teaching at the University of Costa Rica a course designed for the project entitled, Technologies for Good: Technologies Improving Emergency Response, Humanitarian Relief and Social Development.

Successful PhD Defences

The following all deserve our congratulations. Please will all who successfully defend an ISCRAM related thesis send their title and a short(!!!) abstract.

Dr. Tina Comes finished her PhD in summer 2011. Her thesis, entitled "Decision Maps for Scenario-Based Multi-Criteria Decision Support", describes a methodology for robust decision support in situations in which heterogeneous pieces of information must be combined into a meaningful description of the situation and its further development. These descriptions (called scenarios) provide the basis for a thorough analysis of decision alternatives with respect to multiple objectives. The relevance and applicability of her research are illustrated by means of an emergency management example.

In October, *Dr. Jörn Franke* successfully defended his doctorate at SCORE, LORIA-INRIA-CNRS, Université de Lorraine/Université Henri Poincaré, Nancy, France. His thesis was titled: 'Coordination of Distributed Activities in Dynamic Situations. The Case of Inter-organizational Crisis Management'. Abstract: Recently we have seen several large scale disasters affecting humans all over the world. Examples are Hurricane Katrina in 2005, the Haiti earthquake in 2010 or the September 11/2001 terrorist attacks on the world trade center. During these disasters, several hundred organizations, such as police, fire brigade or humanitarian aid organizations, respond with the goal to save people and support them to live a normal life again. They need to coordinate to deal with scarce resources, different skills and capabilities. People in these organizations drive coordination based on their judgment of the situation. The situation can be dynamic: it evolves in sometimes unexpected ways, goals shift and priorities of the organizations change. Typical problems are to get an overview on the relations between what has been done, what is currently going on and what are the next steps. This problem is specially challenging on the inter-organizational level: Each organization coordinates the response from its own perspective and relies on the information provided by other organizations. We aim in this dissertation at supporting coordination of activities by people of different organizations in a dynamic situation by an information system. The disaster response is a critical example for this. The basic idea is to leverage a process-based approach, where activities and their relations are made explicit. We present a framework for coordination of activities in dynamic situations. It allows ad-hoc modeling of the relations between what has been done, what is currently going on and what are the next steps. A model can be verified for correctness in predictable and acceptable time. Deviations from the model and how activities have been performed are displayed to the user to highlight the impact of shifting goals. We extend this framework to the inter-organizational level. Selected activities can be shared by people with selected organizations. This means not everything is shared between everybody to take into account privacy, regulatory, strategic or other reasons. Shared activities are replicated in the workspaces of these organizations. We describe how diverging views on replicated activities and their relations can be detected and handled to ensure eventually a converging view. The concepts are implemented as an extension to an open distributed collaboration service. They are also commented by experienced disaster managers. Furthermore, we design an experiment to evaluate tool support addressing the research questions. We conducted several experiments to validate the design of the experiment. Further experiments can provide validation of the concepts implemented as a prototype in this thesis.

Dr. *Louis-Marie Ngamassi Tchouakeu* graduated with his Doctorate Degree in August 2011 from the College of Information Sciences and Technology at Penn State University. His dissertation research was entitled, "Humanitarian Information Management Network Effectiveness: An Analysis at the Organizational and Network Levels". Abstract: Massive international response to humanitarian crises such as the South Asian Tsunami in 2004, the Hurricane Katrina in 2005 and the Haiti earthquake in 2010 highlights the importance of humanitarian inter-organizational collaboration networks, especially in information management and exchange. Despite more than a decade old call for more research on the effectiveness of inter-organizational networks in the nonprofit context, to date limited work has been done. The objective of this dissertation is to develop a theory that contributes to provide a better understanding of organizational and network effectiveness in the humanitarian relief field. The study deals with two broad research questions. The first research question focuses on the relationship between network structural characteristics and network effectiveness. The second research question concerns organizational effectiveness and focuses on the relationship between organizational internal characteristics and especially the availability

of information technology, ego-network characteristics, network structural characteristics and effectiveness. To answer these research questions, I used a multi-method study that applies social network analytic techniques in combination with statistical analyses (correlation and regression) and content analysis to analyze data collected through multiple sources including a web-based survey and semi-structured interviews and database search. At the network level of analysis, my findings help to validate a previous model for assessing network effectiveness and thus extending the model in the humanitarian relief field. At the organizational level of analysis, my research proposes and integrated approach for assessing effectiveness that take into account the characteristics of organization but also those of the network in which the organization is embedded. My study also highlights the catalectic role of information technology on organizational effectiveness in humanitarian information management and exchange. The dissertation concludes by highlighting both theoretical and practical contributions and by suggesting directions for future research.

In November, *Dr. H. Can Ünen* of the Geomatics Engineering Department of Istanbul Technical University defended his thesis on: 'Seismic Performance Analysis of Interdependent Utility Network Systems'.

Jens Pottebaum of the University of Paderborn defended his thesis on: "Optimisation of application oriented learning by knowledge identification". The configuration of the organisational structure of operations and projects challenges managers to take experience based decisions. Such experiences are made in practice and trainings. Goal oriented reflexion is needed to ensure application oriented learning. These kinds of knowledge work are influenced by the areas of operation management, knowledge management and learning management. They carry high potential for learning organisations; in spite of existing IT solutions nowadays this potential is not utilised considering the aforementioned configuration process. This would be essential especially for organisations which perform such operations in high frequency, which have to react to significant external influences and which have to cope with limited resources in time critical situations. The concept 'optimisation of application oriented learning by knowledge identification' integrates existing processes and process models of all three areas by defining use cases and by modelling data in an integrative, event oriented and semantic fashion. The implementation and the evaluation of a prototype for 'Interactive Resource Management (IRM)' as well as expert interviews are selected as methods to verify the core research hypothesis in a specific case study 'fire protection' as an example of high performance systems: Based on the integration of content and the utilisation of IT based concepts it is possible to identify knowledge work and corresponding application oriented learning.

Recent Publications

Note: We asked in the last issue where you published your ISCRAM related work. We got not a single response: you were probably too busy replying to our membership survey! But if we do get a list of relevant journals, we will monitor them to build the list here.

Connie White has recently published two books of relevance to our community.

- Social Media, Crisis Communications and Emergency Management: Leveraging Web 2.0 Technology. Frances and Taylor Publications, CRC Press.
- Delphi Decision Support 2.0: Crisis Management Support During Extreme Events. Lambert Academic Publishing, Germany.

Lili Yang, Hongyong Yuan and Guofeng Su (2011) "Design Principles of Integrated Information Platform for Emergency Responses: The Case of 2008 Beijing Olmpic Games", and authors are. Here is the link: *Information Systems Research Journal* (in Press). http://www.informs.org/Pubs/ISR/Future-Issues

Finally:

SPECIAL ISSUE OF ACM TRANSACTIONS ON COMPUTER-HUMAN INTERACTION: Social Media and Collaborative Systems for Crisis Management

Appearing in December 2011, the aim of this special issue was to gather and summarize a set of empirical studies of the design and use of social media and collaborative information systems to support collaboration in crisis management. It grew out of recent track sessions at ISCRAM, but was open to all; the final set of papers include some that are revised and (considerably) expanded versions of ISCRAM papers, and some that are not. The editors (Roxanne Hiltz, Paloma Diaz and Gloria Mark) received over 20 papers, and eventually five were chosen for the special issue. With a need for 60+ reviews, it was ISCRAM members who answered the call more than traditional

TOCHI reviewers, and who made it possible to complete the reviewing cycle on schedule.

All five of the papers demonstrate the socio-technical aspect of crisis management systems- that is, the interaction of the technical and the social systems in a continuous process of adaptation. Because different organizations must communicate and cooperate in order to coordinate their actions during a crisis, inter-systems operability and compatibility is a major challenge and issue for crisis response systems. This issue is treated in two of the papers, one on Tsunami Warning Systems, by Grabowski and Roberts, and one on socio-cognitive aspects of inter-operability, by Kwon, Smith and Bostian.

A study by Brian Semaan and Gloria Mark looks at how Iraqi citizens use ICTs to overcome the protracted and extensive infrastructure breakdowns of the second Iraq war. ICTs were also used to conduct the study, as cell phones and Skype were the primary mode of communication for the lengthy semi-structured interviews, conducted between 2007 and 2010.

The final two papers address collaboration issues within the context of crisis and emergency management: In "Supporting Common Ground and Awareness in Emergency Management Planning: A Design Research", Convertino, Mentis, Slavkovik, Rosson and Carroll describe an exhaustive design research approach. It combined fieldwork and the use of different kinds of prototypes to better understand how the members of a planning team share knowledge and develop awareness. In "The Team Coordination Game: Zero-Fidelity Simulation Abstracted from Fire Emergency Response Practice", Toups, Kerne and Hamilton describe the development and evaluation of the Team Coordination Game (TeC). This is a zero-fidelity simulation that is based on distributed cognition, simulation theory and a number of design principles for teaching team coordination, derived from the observation of and engagement with fire emergency response practitioners.

Most university electronic libraries subscribe to the ACM digital library, so you should be able to obtain the articles in this special issue.

New Research Projects

Note: the aim of this section is to announce new major projects so that other ISCRAM members may make contact if they are pursuing similar research objectives. Of course, we want to celebrate funding success too, but our aim is primarily to foster contacts and collaboration. We invite you to let us have short (1-2 page) descriptions of relevant projects. So here is the first that we have received.

SmartRescue – Smart Phones for Immediate Coordinated Threat Assessment and Evacuation Planning in Acute Crisis Situations

Background: Mobile wireless devices such as mobile phones and smart phones have become a widespread and typical asset. At the same time, such devices, especially smart phones, are equipped with ever more advanced sensor technology, including accelerometer, digital compass, gyroscope, GPS, microphone, and camera. This has enabled an entirely new type of smart phone applications that connects low-level sensor input with high-level events [1]. This new type of applications involves individuals as well as groups of users, even entire communities. A recent example is automatic classification of the surroundings of a smart phone owner by using the phone's microphone [2]. By combining the smart phone's accelerometer with GPS, one can also determine movement patterns. One can, for example, determine if the phone owner is walking, running, or cycling [3]. Interaction between multiple smart phones provides further possibilities. Then it is for example possible to use GPS data from large groups of users to identify which places different subpopulations frequent. This, in turn, allows participating users to receive targeted recommendations on restaurants, shops, etc., based on the behaviour of the subpopulation that best fits the user's own movement patterns [4]. Another example is the PIER project where smart phone based sensor technology is used to determine how the actions of large groups of users affect the environment in the form of various types of pollution [5]. Recently, so-called "human-centered sensing" (HCS) has been introduced for crisis response and management, with humans as information collectors [6].

Aims: The SmartRescue project will explore how the above kind of communication technology can be used in acute crisis situations where individuals need awareness of immediate threats, as well as plans for evacuation from the affected area in the safest possible way. Our focus will particularly be on the first phase of an acute and severe emergency situation in which human life and health are endangered, and where individuals for the moment are partially left to themselves, for example, because the traditional response apparatus is suppressed, delayed or paralyzed by the crisis. One possible scenario is explosive fire aboard a ferry or cruise ship. As a passenger,

you will then want to find the safest possible escape route to the nearest operational life raft, but what if the closest marked escape route is blocked due to the fire, or what if the rescue fleet at the end of the escape route is damaged? Another threat is escape route bottlenecks, where an accumulation of people can delay or even endanger the evacuation. Similar emergency situations could arise when terrorists attack a shopping center, in tunnel fire, or in gas related explosions in a public building. It is for these acute and complex emergencies the Smart Rescue project will develop a smart phone based system for immediate and concerted threat assessment and evacuation planning.

Method: The problems to be addressed by the SmartRescue involves crisis management, ad-hoc networking, artificial intelligence, mobile phone sensing, crisis mapping, information security, and crisis simulation. Thus, an interdisciplinary research approach is required.

To elaborate, a SmartRescue system in operation will consist of a SmartRescue application installed on each participating smart phone. The first task of this application is to control smart phone sensors, primarily for mapping local threats such as fire in a ferry fire or gunfire in terrorist attacks. At the same time, the SmartRescue application contacts applications on other smart phones for information sharing. The aim of this collection and sharing of sensor measurements is to jointly form a continuous threat picture. For ferry fire, for instance, awareness about which parts of the boat are affected and where passengers are heading would be important.

The second task of the SmartRescue application is to form an evacuation plan. This will be achieved by combining the continuously updated threat picture, established as described above, with available safety information such as maps, overview of escape routes, and messages from any crisis management personnel. This information is then used by the SmartRescue application to propose a coordinated evacuation plan to those involved in the crisis. The goal is to minimize the risk of loss of health and life, for example, by avoid mapped threats and avoiding congestion and large gatherings of people.

Objectives: Designing a solution for the SmartRescue system, as outlined above, will require a complex interplay of various fields of research. Our objectives are to address the following challenges.

- A SmartRescue system will depend on robust establishment of ad-hoc networking that connects smart phones together, even when a crisis situation involving a damaged communication infrastructure.
- Sharing of information could represent a risk in some crisis situations, such as a terrorist attack, in which the shared information can be misused. Sharing of information may also involve vulnerability to spread of false information. In order to prevent hostile attacks against the SmartRescue system, the system must ensure information integrity and guard against misuse of information.
- An ability to interpret sensor readings so that a threat picture may be formed is central to the SmartRescue system. Furthermore, a comprehensive threat picture can only be formed when the sensor measurements from several smart phones are seen in context, possibly in combination with information from involved authorities, as the staff of a ship.
- SmartRescue evacuation planning implies an ability to plan under uncertain and complex conditions - the available information will be inaccurate and the situation may be evolving. Handle these challenges requires pattern recognition, intelligent data analysis, as well as scheduling algorithms from the field of artificial intelligence.
- The development of an efficient SmartRescue system requires an understanding of how people in practice can work together during a crisis situation by Smartphone support. This involves human mechanisms that affect reactions in a crisis situation and how distributed collaboration can most effectively be conducted from an information systems perspective.

The project, which is funded by Agder Utviklings og Kompetansefond, will start in January 2012 and run until January 2015, involving a team of professors, post.docs., and PhD students at the University of Agder, Norway.

[1] Nicholas D. Lane, Emiliano Miluzzo, Hong Lu, Daniel Peebles, Tanzeem Choudhury, and Andrew T. Campbell. A Survey of Mobile Phone Sensing. In IEEE Communications Magazine, September 2010, pp. 140-150.

[2] Hong Lu, Wei Pan, Nicholas D. Lane, Tanzeem Choudhury, and Andrew T. Campbell. Sound- Sense: Scalable Sound Sensing for People-Centric Applications on Mobile Phones. In Proceedings of 7th ACM MobiSys, 2009, pp. 165–78.

[3] Shumei Zhang, Paul McCullagh, Chris Nugent, and Huiru Zheng. Activity Monitoring

Using a Smart Phone's Accelerometer with Hierarchical Classification. In Proceedings of the 2010 Sixth International Conference on Intelligent Environments (IE '10), 2010, pp. 158-163.

[4] Sense Networks. www.sensenetworks.com/technology.php

[5] M. Mun et al.. PEIR, the personal environmental impact report, as a platform for participatory sensing systems research. In Proceedings of the 7th international conference on Mobile systems, applications, and services (MobiSys '09). ACM, New York, NY, USA, 2009, pp. 55-68.

[6] M. Jiang and W. L. MeGill. "Human-centered Sensing for Crisis Response andManagementAnalysis Campaigns. In Proceedings of ISCRAM 2010, Seattle, WA, USA, 2010.

Upcoming Conferences and Seminars

First International Workshop on Social Web for Disaster Management (SWDM)

April 17, 2012 – Lyon, France

swdmwww12.wordpress.com

The objective of this workshop is to bring together researchers and practitioners who are interested in employing data from the social Web for large scale event management. While traditionally a handful of news channels report updates, recently multiple communication channels and modes have been used by citizens and organizations to share, predict, detect, discuss and report on large-scale event events.

Prime examples are the communications patterns and sharing motifs that emerged shortly after the London underground bombings (cell-phone based updates), Hurricane Katrina (Craigslist), or the Hudson river plane crash (Twitter). Existing approaches to mining public feeds (e.g. Twitter) are primarily aimed at searching for specific information or providing general trends within the whole dataset, and crucially post-event (e.g. time or location based crowd clustering). Web also played a major role during the Iraq War enabling Iraqi people to control identity, to collaborate in travel, and to provide alternative sources of news and information. The Oklahoma Grassfires and the Red River Floods of April 2009 were covered by citizens microblogging on Twitter to enhance situational awareness. During these disasters, there was rapid generation of Twitter communications by numerous sources using a variety of communications forms.

The shift towards community-driven updates pose two challenges: vast amount of information is published and requires analysis and making sense out of it, and also credibility becomes an important issue. This workshop aims to bring together a body of knowledge that can provide the means for sharing community-relevant information especially when members become geographically dispersed, leveraging and even building community resources in the process.

Submission deadline: January 23, 2012

IDRC DAVOS 2012: 4th International Disaster and Risk Conference

Integrative Risk Management in a Changing World – Pathways to a Resilient Society

26-30 August 2012 – Davos, Switzerland

www.idrc.info/pages_new.php/IDRC-Davos-2012/831/1/

Today's societies are faced with numerous interconnected, complex and emerging risks. Environmental, technical, social and economic risks are often closely linked and can result in successive impact. For example the recent earthquake in Japan, resulted in a disastrous tsunami, creating nuclear meltdown at its key facilities. Risks and disasters explored at the IDRC include, amongst others, natural hazards, failures of critical infrastructure and services, pandemics, acts of terrorism and financial crises. All can severely impact and influence human beings and collective societies.

Participants of IDRC include risk management experts, practitioners, scientists, key players from civil society, Non-Governmental Organisations and the private sector. The diversity of participants enables both a strategic and operational level of discussion to ensure "the last mile" will be considered with key players from line ministries and disaster and risk management authorities. IDRC Davos 2012 helps bridge the gap in problem solving between the causes of problems governance, and technology.

Submission deadline: February 29, 2012

18th Americas Conference on Information Systems (AMCIS 2012), Seattle, WA, August 9-12, 2012

Mini-track on ICT-enabled Crisis Response and Management

amcis2012.aisnet.org

The frequency and devastating impacts of natural and man-made catastrophes and disasters, and even extreme events, have markedly increased over the past two decades making this a major concern and topic for national and global research. Information and communication technology (ICT) plays an increasingly important role in all phases of crisis response and management. This AMCIS 2012 minitrack will contribute to the discussion in the AMCIS community about ICTs in crisis response and management by creating a space for discourse about the role of information systems throughout emergencies and disasters (including crisis informatics).

Papers are invited that deal with any aspect of the analysis, design, development, deployment, operation, or evaluation of information systems for crisis response and management. Authors may focus on the tools, functionality, and/or interfaces that are being or should be provided to human actors involved with crisis. Also, the specific challenges residing in the context of emergency and disaster response management and how information systems are used to cope with those challenges are in the particular focus of this minitrack. We further invite papers that cover Crisis Response and Management (including Crisis Informatics) in any phase, intersection of phases, and/or integration of phases of the Emergency Management and Preparedness lifecycle: Planning, Training, Mitigation, Detection, Alerting, Response, Recovery, and Assessment.

Submission deadline: March 1, 2012

Next Issue

The next issue of the Newsletter will be published in April 2012. Throughout this issue we have suggested many different types of article, items of news, announcements, etc. that you might submit. But do not feel limited by our suggestions. If it is appropriate we will include whatever you send in.

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