Local Advisory Board Meeting
Blacksburg, VA – 9/29/2009

Crisis, Tragedy, and Recovery network (CTRNet)

Edward A. Fox
Virginia Tech, Digital Library Research Laboratory

Outline

- Introductions
- Overview of proposal and project
- Reports from co–PIs and students
- Discussion of priorities
- Advice/recommendations
# Attendees (plus CS5604 team)

<table>
<thead>
<tr>
<th>Co-Pls:</th>
<th>Advisory Board:</th>
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</thead>
<tbody>
<tr>
<td>Fox, Ed</td>
<td>Blythe, Erv</td>
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<tr>
<td>Kavanaugh, Andrea</td>
<td>Guilbaud, Patrick</td>
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<tr>
<td>Ramakrishnan, Naren</td>
<td>Hawdon, James</td>
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<tr>
<td>Sheetz, Steve</td>
<td>Jones, Russell</td>
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<tr>
<td>Shoemaker, Don</td>
<td>Luke, Tim</td>
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<tr>
<td><strong>GRAs:</strong></td>
<td><strong>McMillan, Gail</strong></td>
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<tr>
<td>Dewanjee, Bidisha</td>
<td>North, Chris</td>
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<tr>
<td>Srinivasan, Venkat</td>
<td>Nowak, Jerzy</td>
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<tr>
<td>Chigani, Amine</td>
<td>Powers, Jim</td>
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External Advisory Board

- Starr Roxanne Hiltz – NJ Institute of Technology
- Murray Turroff – NJ Institute of Technology
- Kristine Hannah – Internet Archive
- Susan Metros – U of Southern California
- Ben Shneiderman – U of Maryland
- Padmini Srinivasan – U of Iowa
- Eric Van de Velde – Caltech
- OTHERS????
The 4/16 Digital Library

A digital library for recovery, research, resources, analysis and community relating to 4/16/2007, and after, at Virginia Tech.

Share
Share your stories, photos and videos with us.

Resources
Browse our multimedia and external link collections.

Analysis
Query the resources, generate visualizations, data mine for patterns, and share results.

Thanks to: NSF IIS-0736055
Crisis, Tragedy, and Recovery

- Human tragedies that result from man-made and natural events affect communities significantly.

- During and after a tragic event, there are a series of needs that have to be addressed.
  - Usually centered around communication and a confusing plethora of data and information.
Intro: Broader Interest

- Kauhajoki Finland shooting
- Northern Illinois U. shooting
- Texas A&M Bonfire disaster (Project BEAM)
- Beslan school massacre
- Requests for help with documentaries
- MoU with eIFL.net (Iryna Kuchma)?
- Proposal to Google Research?
- Support by Regroup?
- **Interest**: counseling, psychology, sociology, history, oral history, technology use, ...

- Idea: distributed digital library network, with world-wide collaborating community
## Intro: Crisis, Tragedy, and Recovery (CTR) Interest

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>IA Collection</th>
<th>Wikipedia suffix, other URLs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>Asian Tsunami</td>
<td>2004</td>
<td>Indian_Ocean_earthquake, tsunami.archive.org</td>
</tr>
<tr>
<td>2007</td>
<td>Burmese Uprising</td>
<td>937</td>
<td>2007_Burmese_anti-government_protests</td>
</tr>
<tr>
<td>2008</td>
<td>Georgia and Russia Conflict</td>
<td>1120</td>
<td>2008_Georgia–Russia_crisis</td>
</tr>
<tr>
<td>2008</td>
<td>Iowa Flood</td>
<td>1092</td>
<td>Iowa_flood_of_2008</td>
</tr>
<tr>
<td>1998</td>
<td>Matthew Shepard murder</td>
<td>1075</td>
<td>Matthew_Shepard</td>
</tr>
<tr>
<td>2008</td>
<td>N. Illinois U. Shooting</td>
<td>970</td>
<td>Northern_Illinois_University_shooting</td>
</tr>
<tr>
<td>2008</td>
<td>Tibet protests</td>
<td>1044</td>
<td>Tibet_protests</td>
</tr>
</tbody>
</table>

Plan: school shootings, school events, then to full set of natural / man-made
How can a portion of the CTR Network be built semi-automatically, drawing upon related digital libraries, web pages, query logs, Web 2.0 applications, and other readily available Internet resources?

How can this CTR Network be utilized, efficiently and effectively, for a wide variety of tasks?

What kind of (usable) user interfaces can facilitate building and utilizing the CTR Network?

How can our solution be evaluated and validated, leading to a widely used methodology?
Related Work: Analysis in Response to Crisis Situations

- Facebook Study
- If you used a social networking website to communicate to others that you were safe or OK, which website did you use first?
  - 426 responses
  - Content Analysis
  - Results
## Related Work: Keywords for coding

<table>
<thead>
<tr>
<th>Avoid</th>
<th>Don’t have to deal with AIM or phone calls.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belong</td>
<td>Only social networking website respondent belongs to or they say that they had an account at the time.</td>
</tr>
<tr>
<td>Easy</td>
<td>Easy (and quickly) way to contact people or saying I know how to use Facebook.</td>
</tr>
<tr>
<td>Friends</td>
<td>Friends and other peers use this particular social networking website, must have thought that friends are on this site, everyone means their friends.</td>
</tr>
<tr>
<td>GetInfo</td>
<td>Went to the site to get information or best information.</td>
</tr>
<tr>
<td>Groups</td>
<td>Joined groups to connect with others.</td>
</tr>
<tr>
<td>Mass Comm</td>
<td>Wanted to reach many people at once, must have the intent to contact many people. Not make a direct connection with individual.</td>
</tr>
<tr>
<td>Networks</td>
<td>Means that the site is the most popular or has the most people.</td>
</tr>
<tr>
<td>OK</td>
<td>Idea that they went to the site for the purpose of letting others know they were OK or checking if others were OK.</td>
</tr>
<tr>
<td>Only Way</td>
<td>For some lost touch friends, this was the only method of communication available</td>
</tr>
<tr>
<td>Personal</td>
<td>Personal messages to or from individuals were utilized.</td>
</tr>
<tr>
<td>Reliability</td>
<td>Cell phone or other services were unreliable, however, social networking, websites were online the entire time allowing for faster response time</td>
</tr>
<tr>
<td>Status</td>
<td>Indicates that they used the public status feature to provide or receive updates about who was OK faster</td>
</tr>
<tr>
<td>Wall</td>
<td>A general post could be left on one’s own “wall” indicating they were OK. Ability to post single message for all friends to see. Anytime posting is mentioned.</td>
</tr>
</tbody>
</table>
## CTR keyword pairs from literature

Extracted top keyword pairs from ISCRAM proceedings using the N-gram statistics package

<table>
<thead>
<tr>
<th>emergency response</th>
<th>decision support systems</th>
<th>information systems</th>
<th>teams participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>decision making</td>
<td>data models</td>
<td>disaster monitoring</td>
<td>teams maps</td>
</tr>
<tr>
<td>command teams</td>
<td>disaster plan</td>
<td>crisis management</td>
<td>sms text-message</td>
</tr>
<tr>
<td>flood alerts</td>
<td>information seeking</td>
<td>situational awareness</td>
<td>disaster registry</td>
</tr>
<tr>
<td>physical communication</td>
<td>human disaster</td>
<td>teams access</td>
<td>decision preference</td>
</tr>
</tbody>
</table>
Related Work: Coding Results

- 59% Friends
- 28% Belong
- 28% OK
- 22% Easy
- 11% Status
- 10% MassComm
- 10% Personal
- 8% Reliability
- 7% Networks
- 5% Groups
- 4% Wall
- 2% GetInfo
- 2% Only Way
- 2% Avoid
- 2% GetInfo
- 2% Only Way
- 2% Avoid
Categories from focus group study

Results from focus group interviews following the April 16, 2007 tragedy at Virginia Tech
An ontology for CTR

**CTR Ontology**
- Individual
- Organizational
- Community
- Political
- ...

**Uses**
- Browsing
- Searching
- Query expansion
- Tagging
- Recommending
- Summarizing
- Visualizing

**Sources**
- Focus groups
- Websites, Internet Archive
- Social network applications
- Multicultural/linguistic input
- CTR literature
Crisis, Tragedy, and Recovery Network (CTRnet)

- Build a networked digital library relating to CTR
- Integrate community, content, and services relating to CTR, making it accessible, and preserving it for long-term reuse
- Support information exploration
- Aided by an ontology
# Approach: Services

<table>
<thead>
<tr>
<th>Infrastructure Services</th>
<th>Add Value</th>
<th>Information Satisfaction Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repository-Building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquiring</td>
<td>Classifying</td>
<td>Browsing</td>
</tr>
<tr>
<td>Cataloging and Annotating</td>
<td>Clustering</td>
<td>Collaborating</td>
</tr>
<tr>
<td>Crawling</td>
<td>Entity Extraction, and Integration through URM</td>
<td>Customizing</td>
</tr>
<tr>
<td>Digitizing</td>
<td>Evaluating</td>
<td>Filtering</td>
</tr>
<tr>
<td>Federating</td>
<td>Auto Tagging</td>
<td>Providing access</td>
</tr>
<tr>
<td>Harvesting</td>
<td>Publicizing</td>
<td>Recommending</td>
</tr>
<tr>
<td>Submitting</td>
<td>Rating</td>
<td>Searching</td>
</tr>
<tr>
<td>Indexing</td>
<td>Ontology building</td>
<td>Visualizing</td>
</tr>
</tbody>
</table>
Approach: SSP and Storytelling

- Users
- New Queries
- SSP/PR
- Queue
- Stories
- Storytelling Process
- List
- Summary
- Visualization of Chain
- Entries in Chain
An important goal of the CTRnet project is to provide assistance to researchers, especially from social / behavioral science fields. Listed below are a few research questions which are connected with school shootings and similar tragedies.

1. What are the social parameters of social networking (such as Facebook and Myspace) in reaction to school tragedies? For example, do women use social networking more often than men? Is social networking more common among students than faculty or staff? Is social networking more common among university personnel than within the community?

(cont’d)
2. How do school structures affect responses to tragedies? What is the impact of tragedies on community structures and school–community relationships?

3. Are there stages of grieving within a community? We know people go through several stages of grief in reaction to the loss of loved ones. Do communities also go through stages of grief in reaction to tragedies?

4. What are the characteristics of school administrations in reaction to tragedies? For example, do schools vary in initial reactions to tragedies, such as communication and class schedules? Are there differences with regards to long-term effects of tragedies, in terms of organization and communication systems?

5. Are there international differences in response to school shootings? Are these differences evident in school and community settings?
Questions

- Other VT people, partners, collaborators, sponsors, members of external board?
- Should we run more focus groups?
- Pointers to
  - papers, classes, case studies, publications?
- Ontology
  - what should it contain?
Priorities

1. Find key partners
2. Work with data in hand re VT, NIU
3. Prepare to crawl with IA; practice, train others
4. Collect key information especially related to school shootings worldwide
5. Demonstrate storytelling & SSP integration
   ◦ Using social/behavioral science research questions
6. Plan CTR computer
   ◦ Key tools
   ◦ Key content
7. Initial release – of interest to general public
Thank you

http://www.ctrnet.net

Virginia Tech