CNI 2008 Fall Meeting
Washington, D.C., 12/9

Crisis, Tragedy, and Recovery: Digital Library Proposal

Edward A. Fox
Virginia Tech, Digital Library Research Laboratory

fox@vt.edu  http://fox.cs.vt.edu  www.dlib.vt.edu
http://fox.cs.vt.edu/talks/2008/20081209CNI08CTR.pdf
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
Intro: Broader Interest

- Kauhajoki Finland shooting
- Spring 2008 Honors class
- Northern Illinois U. shooting

- Texas A&M Bonfire disaster
- Beslan school massacre
- Requests for help with documentaries
- **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>
**Intro: CTR**

- **Difficulties faced:** information not collected or else scattered; survey contamination; long-term issues/preservation; content/genre variety

- **Scope:** Human tragedies (loss of life) that results from natural or manmade events, where communities are effected (preference of larger communities)

- **Purpose:** Support domain specific community needs through intelligent information integration and rich services
Intro: CTR Timeline
Goals

- Integrating heterogeneous information in a specific domain, making it accessible, and preserving it for long-term reuse
- Extend the scope of digital libraries
- Support information exploration
Research Questions

- 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 do we integrate information from other Digital Libraries such as the Internet Archive and the Library of Congress with the current web to make it more accessible?
- 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>
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% Avoid
- 2% Only Way
- 2% GetInfo
System Stakeholders

- Affected
  - Victims
    - Personal Event Accounts
      - Tragedy updates
    - Coping Resources
      - Reactions
    - Support
  - Victims Family and Friends
  - General Public
  - Community Leaders

- Content
  - CTR Toolkit
    - Tragedy updates
    - Preemptive Laws
    - Tragedy Updates
    - Personal Event Accounts
      - Reactions
      - Personal Event Accounts

- Broader Impact
  - Researchers
    - Analyzed Data Reports
    - Personal Event Accounts
    - Reactions
    - Support
  - Policy Makers
    - Preventative Laws
    - Analyzed Data Reports
    - Coping Resources
  - Community Service Workers
Approach: CTR Network
## Approach: Services

<table>
<thead>
<tr>
<th>Infrastructure Services</th>
<th>Add Value</th>
<th>Information Satisfaction Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Repository-Building</strong></td>
<td><strong>Add Value</strong></td>
<td><strong>Information Satisfaction Services</strong></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

Diagram:
- Users
- New Queries
- SSP/PR
- Queue
- Stories
- Storytelling Process
- List
- Summary
- Visualization of Chain
- Entries in Chain
Selected References


Edward A. Fox
Virginia Tech, Digital Library Research Laboratory