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# Multi-lifespan Information System Design in Post-Conflict Societies: An Evolving Project in Rwanda

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**Abstract**

In this paper we report on our early-stage research and design efforts to provide Rwandans with access to and reuse of video interviews from the International Criminal Tribunal for Rwanda. More generally, we investigate methods and designs that can be deployed successfully within a post-conflict political climate concerned about recurring violence. This work: (1) directly supports the Rwandan people in their efforts to achieve justice, healing and reconciliation; (2) provides the HCI community with methods and approaches for undertaking design in post-conflict situations; and (3) describes the first empirical exploration of multi-lifespan information system design.

**Keywords**

Multi-lifespan information system design, access, reuse, value tensions, post-conflict society, adaptation, appropriation, value sensitive design

**ACM Classification Keywords**

K.4.2 [Computing Milieux]: Computers and Society--- Social Issues; H.5.1[Information Technology and Systems]: Information Interfaces and Presentation---

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multimedia information systems---  
evaluation/methodology;

### **General Terms**

Design, Human Factors

### **Introduction**

Information systems throughout the world mediate socio-political human experience. Such systems underlie (and, conversely, can undermine) people's ability to be informed, to engage in critical discourse, to participate in politics, to gain access to justice, to preserve historical accounts, and to recover from conflict.

Rwanda is one such case. Recovering from the 1994 genocide in which 90% of the minority Tutsi population living in the country was massacred by extremist Hutus, Rwandans are seeking good governance, rule of law, and justice. They do so as a means for achieving healing, reconciliation, and lasting peace. Information systems and interaction design have a critical role to play in these post-conflict socio-political situations. The work reported here is of a piece with a growing body of research in human-computer interaction that engages the intersection of information systems, interaction design, and significant societal issues [1, 2, 9, 10, 13]. Two aspects distinguish this work in part from prior work in the field. First is the far-reaching societal breadth: from integration with government training programs and information centers, to university and law school curricula, to national museums, to youth clubs, to grassroots efforts with victims of rape in Rwandan and Great Lakes Region society. Second is the explicit intention to create an information system to support long-term societal change.

In this paper we report on our early-stage research and design efforts to provide Rwandans with access to and reuse of interviews conducted with personnel from the International Criminal Tribunal for Rwanda (ICTR), the collection we refer to as the "Tribunal Voices". Our work negotiates the challenging design space of creating information tools to support access and reuse of historically significant material in a political environment that does not yet support critical discourse, dialog and freedom of expression. At the same time, there is an expressed desire on the part of the Rwandan government and many Rwandans to evolve their society to a state in which individuals resolve differences without resorting to violence [8]. In pragmatic terms we investigate the development of methods and designs that can be deployed within the current political climate and, at the same time, participate in helping to move the society forward toward the greater freedom of expression and critical thinking that is desired by many Rwandans.

### **The goals of this research**

The goals of the research reported here were five-fold: (1) to determine the extent to which the Tribunal Voices material would be of interest to the Rwandan people and, if so, to whom and in what ways; (2) in the transforming Rwandan context, to understand the meaning of and challenges for access to the material from a technological, cultural, linguistic, political, and social perspective; (3) to initiate and support appropriation and reuse of the Tribunal Voices by diverse Rwandan constituents in the context of their on-going goals, activities, and organizations; (4) to develop design guidelines and methods to do the former; and (5) to investigate design processes that

adjudicate value tensions among freedom of expression, safety, and Rwanda's rule of law.

This paper is organized as follows. First, we provide the reader with some background on the 1994 Rwandan genocide, transitional systems of justice, and the current situation in Rwanda 15 years after the genocide. Then we describe the Tribunal Voices collection, situate our work within the HCI literature, and discuss some methodological considerations. With this intellectual grounding, we turn to report on our early-stage work in Rwanda including preparing to conduct this research, offering the Tribunal Voices to Rwandans, and a brief overview of our project outcomes. We conclude with the project's contributions.

### **Background: the Rwandan context**

#### *The 1994 Genocide in Rwanda*

In 1994 approximately 800,000 Rwandans were massacred by their neighbors, relatives, political leaders, and clergy in just 100 days. In addition to the government, military, and churches, media and information systems played a critical role in the genocide, both in terms of inciting rage and in directing the violence. In a country of 8 million, virtually every person was a perpetrator, a victim, or a witness of the genocide [3].

Today, Rwanda is one of the fastest growing economies in Africa, with well-paved roads winding through the "thousand hills", fiber optic cable being laid throughout the country, and hospitals, schools, hotels, and homes literally rising from the rubble of the past. In this rapid paced development, survivors and genocidaires live and work side by side. Yet whether Rwanda can foster and

maintain a lasting peace for its people remains an open question [8].

#### *Transitional Justice: The International Criminal Tribunal for Rwanda (ICTR), Rwandan National Courts, and Gacaca Courts*

The transitional government following the genocide took a strong stance against a culture of impunity, declaring that justice was to form a cornerstone of a stable and sustainable peace in Rwanda. But the way forward was tremendously challenging. With an estimated 80% of justice system personnel having been either killed or displaced during the violence, the capacity of Rwanda to provide a judicial response in the immediate aftermath of the genocide was severely limited [8, 11].

Overtime, three justice systems emerged. First, in 1994 the United Nations Security Council with the cooperation of the Rwandan government established the International Criminal Tribunal for Rwanda (ICTR) with a mandate to prosecute those who organized and masterminded the genocide. The tribunal was entrusted with the authority to extradite across international boundaries and provided with funding from UN countries on the scale of European courts. The remaining perpetrators, estimated at anywhere between tens of thousands to 3 million would be prosecuted and the convicted incarcerated by the second justice system, the Rwandan national courts [11]. However, 1998 saw upwards of 130,000 people awaiting trial in Rwanda's overcrowded prisons; it was estimated that it would take over 200 years to try all those in detention. Thus, the Rwandan government created a third justice system based upon a traditional method of village dispute resolution entitled "Gacaca".

The Gacaca courts have tried thousands of the accused [8, 11].

*The socio-political climate in Rwanda circa 2009*

The Rwandan government has begun a campaign for “one unified Rwanda”, a Rwanda in which the ethnic groups of Hutu and Tutsi do not exist. In June 2008, the Rwandan Parliament passed a law modeled after Holocaust denial legislation that criminalizes ‘genocide ideology’, including denial of the Rwandan genocide that can lead to sentences of up to 25 years in prison.

While convincing arguments can be made in support of the law and its importance for maintaining peace and stability in post-conflict Rwanda, there are serious concerns surrounding its implications for freedom of expression. NGOs have drawn attention to the potential for the law to be used to limit political opposition and prohibit critiques of the Gacaca courts. Thus, the law has wide-ranging consequences for open and democratic political discourse and teaching about the genocide and Rwandan history in schools [7].

*The technical infrastructure in Rwanda circa 2009*

Rwanda resembles many African nations in its current technical infrastructure: (1) radio remains the single most pervasive communication medium; (2) widespread cell phone penetration in both rural and urban areas; (3) cell phone use for transactions (e.g., paying electricity bills) as well as communication; (4) limited electrical power in rural villages, reasonably reliable electrical power in urban areas; and (5) minimal Internet access in villages, moderate bandwidth Internet access in urban areas through Internet cafes, businesses, and schools (but virtually no Internet access in people’s homes). That said, significant

change is underway: fiber optic cable is being laid throughout the country and is expected to bring high-bandwidth Internet to many Rwandans.

**The Voices from the Rwanda Tribunal**

After nearly 15 years of operation, the trials of the ICTR are coming to a close. Motivated by the impending closure date, a team (comprised in part by many of this work’s authors) visited the ICTR for six weeks in the fall of 2008. The team conducted 49 video-interviews to collect the experiences and insights of the ICTR’s judges, prosecutors, defense lawyers, investigators, interpreters, and staff who carried out the daily work of the tribunal. The overarching goal of the project is to address the social and technical challenges of creating an information system to preserve, manage, and support widespread access and reuse of the ICTR’s information heritage for centuries to come. For more information about the Tribunal Voices project, see [14].

Independent of the United Nations and the ICTR, the collection positioned us to investigate a host of questions, the first of which we take up in the work reported here: Can we design technical features that support healing, balance, remembering and forgetting for those affected by the genocide, as well as protect against revisionist histories? How can an information system help support legal scholars both within Africa and abroad, who are engaged with international tribunals and rebuilding national justice systems? How can that same information system contribute to a global society that does not want to forget the horrors humankind is capable of committing?

## **Related work in Human-Computer Interaction**

### *HCI and issues of societal significance*

As we note in the introduction, the work reported on here is of a piece with a growing body of work in human-computer interaction that engages the intersection between information systems, interaction design, and significant societal issues. Marsden's [10] work on empowered design for developing countries is one compelling example; as is Mark's and her colleagues' [9] work on Internet usage to sustain communication during war and on-going violence and Best's and his colleagues' [1] work on information kiosks to assist with the Liberian truth and reconciliation process. Dourish's and his colleagues' [13] work that examines the implications of location-based tracking technology for paroled sex offenders a fourth, and Blevis's [2] work on sustainable interaction design a fifth. Our work extends these prior efforts by its far-reaching societal breadth, explicit intention to support societal evolution, and theoretical grounding in multi-lifespan information system design.

### *Multi-lifespan information system design*

Given limitations of the human psyche, peace building and healing from genocide is unlikely to be solved within a single human lifespan. More likely, constructive solutions (should they emerge) will unfold, as subsequent generations gain distance from the killing, and engage in reconciliation and forgiveness. Multi-lifespan information system design [5] explores the roles and opportunities for information systems to contribute to such processes as they unfold. The work reported on here represents an early contribution to multi-lifespan information system design.

### *Value Sensitive Design*

Within the multi-lifespan information system design framing, we drew on key design principles and methods from Value Sensitive Design [4]:

*Representative stakeholders.* We were clear from the beginning that within Rwanda there is no "impartial" orientation with respect to the genocide. We strove to work with groups across diverse sectors of Rwandan society to avoid engaging a single perspective.

*Direct and indirect stakeholders.* We considered all Rwandans and others who eventually would directly access the Tribunal Voices video clips as direct stakeholders in our design work. That said, our design process was targeted at enabling specific organizations to appropriate and reuse the Tribunal Voices material; thus, we focused on the direct stakeholders associated with these specific organizations and, in turn, those individuals that they would enable (in effect, one degree removed from our own design work).

*Value tensions.* Prior work in Value Sensitive Design and related areas [4, 12], alerted us to the need to identify and engage value tensions. We highlight three values and the tensions among them. (1) Safety: In post-conflict situations, citizens may fear for their lives and that of their families should new violence erupt. Safety is a genuine concern among many Rwandans: even within the past year, individuals who testified in the Gacaca courts have been killed; others fear prosecution from the 2008 Genocide Ideology Law; and many fear widespread violence when the current President steps down. (2) Freedom of Expression: Freedom of expression is viewed by many as underlying the kind of critical discourse that is key to a thriving

democracy. In turn, the ability to evaluate arguments and think independently provides the tools for individuals to resist following “orders” of the sort that lead to the 1994 genocide. Yet speaking out – as in the tribunal and at the Gacaca courts – can lead to reduced security. (3) Rule of Law: Furthermore, the Rwandan Constitution and the 2008 Genocide Ideology Law, outlaw certain kinds of discussions; namely those that explore the ethnic identities of Rwandans and that challenge the label of genocide. While we were aware of these three potential value tensions, we did not know how, if at all, they might manifest themselves once we began our research and design work in Rwanda.

### **Some methodological considerations**

In the scope of a short paper it is not possible to provide detailed methods about all we have done. Here we provide general methodological information and foreground aspects unique to this particular context.

#### *Human subjects*

Conducting research in a post-conflict situation poses unique challenges for protecting human subjects. In particular, prior to being in the country, it is difficult if not impossible to understand the conditions that would be perceived as safe by potential participants. After experiencing these challenges firsthand during our 2008 trip to Tanzania and Rwanda, we developed the following practices in collaboration with our institution’s Human Subject Institutional Review Board (IRB).

In lieu of rigidly prescriptive protocols and scripts, our consent practices were informed by context. Given that we could not know in advance what places (e.g., public building, home), situations (e.g., in a private meeting,

in a group), and times of day (e.g., during work, in the evening) participants would perceive as safe, our context-sensitive protocols permitted specific decisions to be made in the field in consultation with participants.

In addition, our multi-lifespan design perspective called attention to the longer-term possibility for political regime change and, correspondingly, the potential implications for participants. Thus, we obtained oral consent from all project participants leaving no paper trail. Participants who wished to be photographed or otherwise have their participation documented with identifiable information provided written consent but only after being specifically alerted to potential future risks.

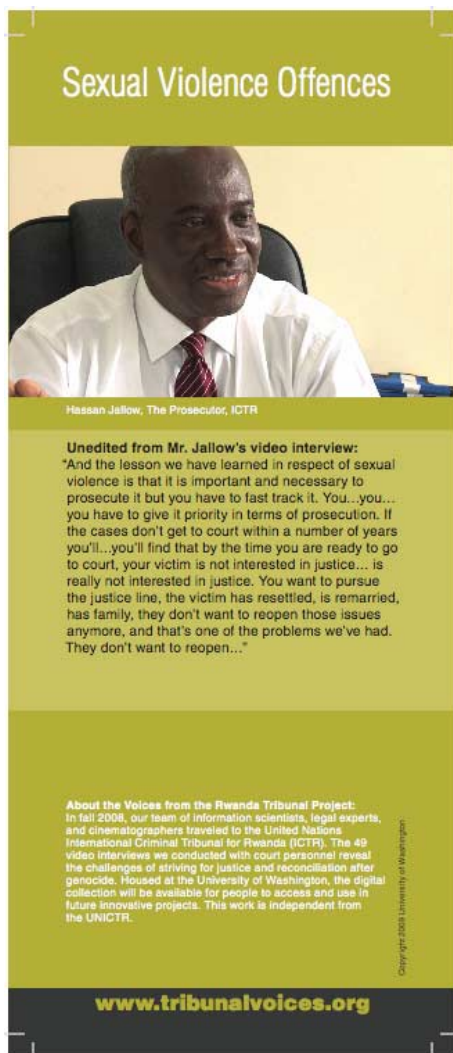
#### *Project team and partner organizations in Rwanda*

Our diverse 10-person project team consisted of four information scientists/designers, three law and human rights specialists, two cinematographers, and a student intern. Partner organizations were recruited using a “snowball” model: Specifically, we made contact with an initial set of organizations through email and word of mouth. Then, through those organizations we gained access to their patrons and other organizations with whom they cooperated.

#### *How will we know if we succeeded?*

The question of design evaluation is always a challenging one and even more so in an enterprise where the results will not be known for decades out.

With that in mind, we consider as reasonable indicators of near-term success: (1) the diversity of stakeholders, organizations, and sectors of society willing to engage with the Tribunal Voices material; (2) the diversity of



**Figure 1.** Sample quote card of ICTR prosecutor Mr. Jallow discussing challenges for prosecuting rape as genocide.

uses – particularly unanticipated uses – that emerged from our efforts; (3) the willingness and interest in those we approached to continue to work with us after we left Rwanda; (4) the breadth of cultural, linguistic, and geographic reach of our dissemination activities; and (5) the extent to which Rwandans – as individuals, organizations, or representatives for the Rwandan government took action to obtain copies of the Tribunal Voices material.

**Preparations for undefined challenges**

On many dimensions we did not know what to expect when we arrived in Kigali, Rwanda. Our strategy was to prepare for the unexpected: To design our materials for flexibility and agility – with respect to language, format, media, electricity, and computing requirements; and to bring with us all of the equipment and materials that at a minimum we would need in order to do the work we envisioned (e.g., extra DVDs, HD video cameras and other equipment for a film workshop with Rwandan youth). Because we could not prepare all 70 – 80 hours of the Tribunal Voices material in Kinyarwanda – due to expense and the time needed to translate – we selected a representative set of 11 subtitled video clips to take with us. As a group, this set touched on topics such as justice and reconciliation, prosecuting for rape as genocide, evidence substantiating genocide, and personal stories of tribunal personnel.

We saw our work as exploratory and wanted to position the Rwandans we would work with to envision different ways in which they might encounter and interact with the Tribunal Voices material. Thus, following the design wisdom of groups such as IDEO, we prepared “prototypes” of the set of 11 Tribunal Voices video clips

in a variety of formats and presentations; the guiding principle here is that by presenting multiple potential solutions the “trap” of one right solution is avoided and openings for new and hybrid solutions are naturally created. We brought four functional prototypes with us: (1) Video clips on DVD (audio in English; subtitles in Kinyarwanda); (2) Video clips accessible from a locally served website with an unmoderated comment facility (audio in English; subtitles in Kinyarwanda); (3) Audio clips delivered to cell phone through an SMS request (English); and (4) Quote cards: each a printed quote from a video clip (Kinyarwanda on one side; English on the flip side) and a brief description and photo of the speaker (see Figure 1).

**Offering the Tribunal Voices to Rwandans**

The key issue underlying all of our work was the question “Would the Tribunal Voices material be of interest to the Rwandan people?” We were well aware that if the answer to the question was a resounding “no”, then we might as well pack up and go home to concentrate on pressing demands for reuse of the materials (e.g., Western legal scholars are eager to use the video material for international legal education). If the answer to the question was “yes”, then who do we talk to? What methods could we use to help ensure that the visions and activities of on-going Rwandan organizations and programs are supported?

Prior to our arrival in Rwanda in 2009, we had read extensively about Rwandan views on the tribunal [11] and spoken with Rwandans and experts on Rwanda. A consistent perspective emerged. From this view, the ICTR had little to do with Rwandan justice, healing and reconciliation. The tribunal was held in Tanzania and

Organization	Outcomes: Appropriation & Reuse of Tribunal Voices Materials
ICTR/EU/GOR Information and Documentation Centres	<ul style="list-style-type: none"> <li>• Categorization scheme and commenting system</li> <li>• Deployment of locally served web-based access system</li> </ul>
Never Again Rwanda [Rwandan Grassroots Organization]	<ul style="list-style-type: none"> <li>• Film workshop with Rwandan youth</li> <li>• Two short films conceptualized, shot, edited, and produced by youth on the topic of peace and justice</li> </ul>
Kigali Memorial Centre	<ul style="list-style-type: none"> <li>• Museum exhibit [planned for 2010]</li> <li>• Archive of clips [planned for 2010]</li> <li>• Film Night with youth films at Centre for Kigali public</li> </ul>
Hope After Rape [Rwandan Grassroots Organization]	<ul style="list-style-type: none"> <li>• Sexual Violence Workshop in Eastern Congo with recent rape victims</li> <li>• DVD: Developing DVD of clips that address sexual violence for use by Hope After Rape and related NGOs</li> </ul>
National University of Rwanda	<ul style="list-style-type: none"> <li>• Deployment of clips for NUR access</li> <li>• Using clips in legal, genocide studies, and communications curricula</li> </ul>
National Unity & Reconciliation Commission	<ul style="list-style-type: none"> <li>• Clips will be used in Civic Retreats (est. 60,000 Rwandans annually)</li> </ul>

**Table 1.** Overview of Rwandan Project Partners and Appropriation/Reuse Strategies during July 16 – August 17, 2009

little communication of the tribunal’s achievements and challenges had filtered back to Rwanda.

In the course our work we met with numerous organizations that represented three main sections of Rwandan society: (1) on the *national* level the Supreme Court, the Ministry of Information, the Commission for the Fight Against Genocide, the National Unity and Reconciliation Commission, the National Service of Gacaca Jurisdiction, and the ICTR/EU/GOR Information and Documentation Centres; (2) within the *public sector* the National University of Rwanda and the Kigali Memorial Museum; and (3) within *Rwandan non-governmental agencies* Never Again Rwanda, Hope After Rape, and Peacebuilding Healing and Reconciliation Project.

*A method for offering content and information design*  
 A substantial challenge for the project was to develop a way to speak with Rwandans about the Tribunal Voices material in light of preexisting negative views. Indeed, many of our conversations began with individuals stating their on-going disappointment with the tribunal. Overtime, the strategy we evolved was as follows:

(1) *Group Composition.* Whenever possible, at each meeting we included at least one information scientist/interaction designer and one law/human rights expert from our team; thus we were prepared to speak to the project’s information/interaction design as well as justice aspects.

(2) *Understanding the Organization.* We began our conversations by asking our hosts to help us understand their organization, its goals, and current challenges; this information provided us with critical

“talking points” about where and how the Tribunal Voices material perhaps might be of interest.

(3) *Establishing Credibility and Independence.* We then clarified our independence from the ICTR and from the United Nations, saying that no funds had been received from either organization and no one from those organizations had approved the video interviews or controlled the collection’s dissemination. Here we worked hard to neither defend nor champion the ICTR, but instead discussed the relatively new concept of international criminal justice.

(4) *Letting the Video Interviews Speak for Themselves.* Next we showed a short video clip from the Tribunal Voices material. The video clips put a human face on the tribunal and it is that human face, the human struggles, and human convictions that provide depth to the tribunal’s work.

(5) *Soliciting Meaningful Possibilities for Reuse.* At this point, we were now ready to ask our hosts if they thought there was some way in which the Tribunal Voices material might be of use or interest to them or someone else in their organization. We *offered* the materials to our hosts in whatever way might make sense to them. In the vast majority of cases, the answer was “Yes!” On more than one occasion our hosts expressed surprise and appreciation for the fact that we had returned to Rwanda with the material, rather than only making it available to westerners.

**Outcomes: Access to and reuse of Tribunal Voices video clips**

Table 1 provides an overview of a number of organizations and the outcomes of our work to date. In

some cases, the proposed uses were as we might have anticipated. For example, the Kigali Memorial Centre would like to incorporate some of the videos into their main exhibit. In other cases, the opportunities for reuse were new to us. For example, the Civic Education section of the National Unity and Reconciliation Commission plans to use some Tribunal Voices video clips in their national retreats of up to 60,000 Rwandans per year in seminars related to good governance and rule of law.

### **Contributions and lessons learned**

Those affected by armed conflicts, civil wars, and on-going cycles of violence – be they persons, organizations, or governments – rely heavily on information systems during and post-conflict to gain access to critical information concerning issues of health, shelter, communication, legal aid, and other basic services. There is great potential to harness the capabilities of modern information systems to increase this access. Those within the human-computer interaction field are well poised to provide expertise and insight into the design of communication tools and interaction designs that support increased access to this information that, in turn, can strongly contribute to healing and reconciliation in post-conflict areas.

The work reported on in this paper represents one small effort along these lines. This project makes three important contributions: first, it directly supports the Rwandan people in their efforts to achieve justice, healing and reconciliation; second, it provides the HCI community with methods and approaches for undertaking information and interaction design in post-conflict situations; third, it describes the first empirical exploration of multi-lifespan information system design.

To assess the success and limitations of our research and design approach, we return to the five indicators articulated in the methodological considerations: diverse stakeholders; diverse uses; on-going use; cultural, linguistic and geographic reach; and Rwandan initiative. All five indicators point toward success. As summarized in Table 1, wide ranging sectors of Rwandan society and organizations engaged with the Tribunal Voices material and for a diversity of uses and purposes [Indicators 1 and 2]. Virtually all of these organizations will continue the work we began with them [Indicator 3]. The cultural, linguistic, and geographic reach of our work stretched from urban Kigali in Rwanda across the border into Eastern Congo, with Kinyarwanda, English, French and Kiswahili speakers [Indicator 4]. Finally, several of the organizations we worked with, such as Hope After Rape and the Kigali Memorial Centre, have initiated plans to further engage the Tribunal Voices material [Indicator 5]. We encountered limitations from inadequate time and resources that impacted our ability to extend further into the Rwandan rural countryside to engage with more isolated sectors of Rwandan society.

Turning now to more general research findings for the HCI community, our contributions:

- Demonstrate early-stage success with domain-defining research on interaction design for and in post-conflict societies.
- Provide a method for offering content and information design that allows project partners to establish the context and boundaries of the conversation.

- Provide an example of returning digital material and offering functional prototypes to a disempowered population. In the words of one Rwandan, “This [project] is very different. Usually researchers come, ask questions, do their work, leave, and the first we see of it is a book sitting on someone else’s bookshelf!”
- Demonstrate the growing potential for the HCI community to engage pressing societal issues.
- Provide a preliminary proof-of-concept for a multi-lifespan approach to information system design.

Peace and justice are on-going pursuits. So, too, then is the design of information systems in their support.

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### References

- [1] Best, M.L., Smyth, T.N., Serrano-Baquero, D., and Etherton, J., Designing for and with diaspora: A case study of work for the truth and reconciliation commission of Liberia. *Extended Abstracts of CHI 09*, ACM Press (2009), 2903-2908.
- [2] Blevis, E. Sustainable interaction design: Invention & disposal, renewal & reuse. *Proc. CHI 2007*, ACM Press (2007), 503-512.
- [3] Des Forges, A. *Leave None to Tell the Story*. Human Rights Watch, New York, 1999.
- [4] Friedman, B., Kahn, P.H., Jr., and Borning, A. Value Sensitive Design and information systems. In P. Zhang and D. Galletta (eds.), *Human-computer Interaction in Management Information Systems: Foundations*. M. E. Sharpe, Armonk, NY, USA, 2006, 348-372.
- [5] Friedman, B., and Nathan, L.P. Multi-lifespan information system design: A research initiative for the HCI community. *Proc. CHI 2010*, ACM Press (2010).
- [6] Friedman, B., Nathan, L. P., Friedman, B., Nathan, L.P., Grey, N.C., Lake, M., Nilsen, T., Utter, E., Utter, R.F., Ring, M., and Kahn. Z. (2010). *Multi-lifespan information system design in the aftermath of genocide: An early-stage report from Rwanda*. (University of Washington Information School Technical Report IS-TR-2010-01-09.) <http://hdl.handle.net/1773/15557>
- [7] Friedman, S.W., Weinstein, H.M., Murphy, K., and Longman, T. Teaching history after identity-based conflicts: The Rwandan experience. *Comparative Education Review* 52, 4 (2008), 663-690.
- [8] Gourevitch, P. The life after. *The New Yorker*, May 4, 2009, 36-49.
- [9] Mark, G. and Semaan, B. Expanding a country’s borders during war: The Internet war diary. *Proc. IWIC 2009*, ACM Press (2009), 3-12.
- [10] Marsden, G. Toward empowered design, *Computer*, 41, 6(2008), 42-46.
- [11] Straus, S. How many perpetrators were there in the Rwandan genocide? *J. of Genocide Research*, 6, 1(2004).
- [12] Tatar, D. The design tensions framework. *Human-Computer Interaction*, 22, 4(2007), 413-451.
- [13] Troshynski, E., Lee, C., and Dourish, P. Accountabilities of presence: Reframing location-based systems. *Proc. CHI 2007*, ACM Press (2007), 487-496.
- [14] Voices from the Rwanda Tribunal. <http://www.tribunalvoices.org/> .