

---

# HCI for Peace: Preventing, De- Escalating and Recovering from Conflict

**Juan Pablo Hourcade**

University of Iowa  
Iowa City, IA 52242 USA  
juanpablo-hourcade@uiowa.edu

**Natasha E. Bullock-Rest**

Brown University  
Providence, RI 02912 USA  
natasha.bullock.rest@gmail.com

**Janet Davis**

Department of Computer Science  
Grinnell College  
Grinnell, IA 50112 USA  
davisjan@cs.grinnell.edu

**Lahiru Jayatilaka**

Computer Science Department  
Stanford University  
Stanford, CA 94305 USA  
lahiru@stanford.edu

**Neema Moraveji**

Calming Technology Lab  
Stanford University  
Stanford, CA 94305 USA  
neema@moraveji.org

**Lisa Nathan**

School of Library, Archival and  
Information Studies  
University of British Columbia  
Vancouver, BC, Canada V6T 1Z4  
lisa.nathan@ubc.ca

**Panayiotis Zaphiris**

Department of Multimedia and  
Graphic Arts  
Cyprus University of Technology  
Limassol 3603 Cyprus  
panayiotis.zaphiris@cut.ac.cy

**Abstract**

The increasing ubiquity of computing devices coupled with recent empirical research on the factors that affect the likelihood of conflict provide HCI researchers with new opportunities to conduct research on interactive systems designed to prevent, de-escalate and recover from conflict. Approaches used by HCI researchers in this field have included the use of a multi-lifespan research initiative to support peace and reconciliation after genocide, CSCW to facilitate communication, visualization to help detect landmines, and calming technology to support individuals desiring interactive systems that scaffold non-violent interactions. In this workshop we plan to further explore these ideas and discuss existing and future challenges.

**Keywords**

Peace; war; social media; Cyprus; value sensitive design; post-conflict reconciliation; calming technology; landmines.

---

Copyright is held by the author/owner(s).

CHI'12, May 5–10, 2012, Austin, Texas, USA.  
ACM 978-1-4503-1016-1/12/05.

**ACM Classification Keywords**

H.5.m [Information interfaces and presentation (e.g., HCI)]: Miscellaneous.

### General Terms

Human factors, design.

### Motivation

The societal costs of war are enormous in terms of economic [12] and human resources [1]. This is even recognized by the military, with the United States Department of Defense, for example, asserting the need to address grievances through peaceful means in order to decrease the need for military confrontations [3].

Until recently, there has been little attention paid to the role computing technology can explicitly play in preventing, de-escalating, and recovering from armed conflict. However, two developments suggest that it is time for an explicit HCI for Peace initiative. The first change, that has also driven other value-oriented research in HCI, is the increasing ubiquity of computing devices. Mobile phones, for example, already reach over 40 percent of the population of Africa [9].

The second change is the availability of a series of empirical studies on the factors that increase and decrease the likelihood of conflict. Led by the likes of Paul Collier at Oxford University, these studies can help the scientific community move away from philosophical discussions on the causes of conflict and move toward addressing the factors that rigorous statistical analyses suggest are often to blame [7].

Government agencies are putting these two developments together. For example, the U.S. State Department is funding technology and software development to promote democracy, one of the key factors associated with a lower incidence of conflict [2].

### HCI Approaches to Peace and Conflict

Attempting to address the issue of armed conflict from an HCI perspective can seem like an insurmountable task, with a complexity significantly beyond what is normally addressed in HCI research. However, a growing community of researchers has been making strides, working on specific projects that are slowly providing us with specific approaches to address peace and conflict. Below, we highlight the approaches that the co-organizers of the workshop have followed. Note that this is not a comprehensive review of all the methods that have been pursued. A more thorough review can be found here [7].

One approach was presented by Hourcade and Bullock-Rest in a CHI 2011 paper [7]. The paper presents a research agenda for promoting peace and preventing conflict through computing devices based on a review of empirical studies on the factors that affect the likelihood of conflict. It discusses factors at the collective and individual level and provides examples of research already conducted in HCI that affect these factors as well as of possible new approaches. Hourcade and Bullock-Rest's contribution simplifies the complexity of addressing such a challenging topic.

Another approach, the multi-lifespan information system design, is a recent initiative that grew out of value sensitive design. While value sensitive design has been useful in other areas, it fits particularly well with the issue of peace and conflict. The *Voices from the Rwanda Tribunal* [4] is the first project to apply the multi-lifespan information system design approach. The project's interactive website provides citizens around the world with various means to access and use video interviews with personnel from the United Nations

International Criminal Tribunal for Rwanda (e.g., judges, defense lawyers, translators, prosecutors). The videos offer critical insights from the individuals who conducted the daily work of a precedent setting international criminal court. These professionals reflect on the achievements and failures of a court tasked to bring justice and reconciliation to people who suffered unfathomable horrors at the hands of their neighbors. Through this project, the research team is building design theory and method to inform the development of the multi-lifespan information system design research initiative [5].

Another use of existing methodologies to help with peace was accomplished by Zaphiris in Cyprus. As recounted during a panel discussion at CHI 2011 [8], for many years people from the Greek and Turkish regions of Cyprus were forbidden from communicating with each other. In fact, they could only meet in other countries. Starting in the 90s, Zaphiris applied techniques from CSCW to facilitate communication between people on opposing sides of the border. This enabled former neighbors to communicate again and establish a dialogue, often a precursor for reconciliation, helping them recuperate from conflict.

An additional challenge in recuperating from conflicts is in addressing the legacy of devices that continue to destroy lives years after a conflict ends. Landmines are a particular challenge in developing regions where safe landmine detectors are too expensive to afford. Jayatilaka et al. have been researching how to address this problem using HCI techniques to develop a low-cost visual support device that can improve the decision making capabilities of human deminers using handheld metal detectors [10]. They have collaborated closely

with the U.S. Department of Defense to prototype and evaluate their system with real deminers.

It is also possible to address the issue of peace and conflict at an individual level. Moraveji runs the Calming Technology Lab at Stanford University [11] with the goal of designing and evaluating systems intended to create calm (or 'restful alertness') in three areas: physiology, cognition, and affect. For example, he has published design techniques on influencing the respiratory patterns of desktop computer users. His work has laid out the foundations for a sub-field of HCI that identifies stressors in user interfaces and methods of mitigating them with design heuristics. The assumption of this vein of research is that societal conflicts emerge from internal conflicts in the individual and that these conflicts can be mitigated by increasing calm and reducing stress. This framing places inner (and therefore external) peace as a natural state that is disrupted by internal and external distractions (i.e. stressors). It logically follows that technologies must attempt to remove those stressors and cultivate a peaceful mindset.

### Issues for Discussion

The descriptions above raise just a few of the issues to discuss in this emerging subfield of HCI. The list is not exhaustive and the organizers welcome a discussion on the advantages and disadvantages of each approach. In addition, one of the goals of our workshop will be to consider other approaches to preventing, de-escalating, and recovering from conflict.

In addition to approaches, methods also matter. It is unclear what HCI methodologies are most appropriate

for different situations and whether novel methodologies need to be developed.

A challenge most projects in this area will face is in evaluating their impact. While in some cases this may be straight-forward (e.g., landmine detection), in other situations the impact may not be known for decades and it may be difficult to separate the impact of a particular approach from other factors [4].

It is also too early to have a clear idea of the contexts, practices, and policies that may help an approach have a positive impact. We have to realize that in many cases technologies may not help, and identifying the situations where their impact could be optimal would help researchers focus their efforts.

A final challenge is addressing the multiple perspectives that are present in any conflict. We need to keep in mind that these systems will often engage multiple stakeholders with vastly different levels of power and autonomy (e.g., related to ethnicity, gender, age). These may lead to strongly opposing views that need to be addressed.

### Citations

- [1] Brzezinski, Z. (1993). *Out of Control*. Global Turmoil on the Eve of the Twenty-First Century. New York: Scribner.
- [2] Cohn, A.M. (2011). State Department shifts digital resources to social media. *The Hill*. <http://thehill.com/blogs/hillicon-valley/technology/157501-state-dept-shifts-digital-resources-to-social-media>
- [3] Department of Defense (2008). *National Defense Strategy*.

<http://www.defenselink.mil/news/2008%20national%20defense%20strategy.pdf>.

- [4] 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 post-conflict societies: An evolving project in Rwanda. *Extended Abstracts of CHI 2010 Conference on Human Factors in Computing Systems*, 2833–2842. New York: ACM Press.
- [5] Friedman, B., and Nathan, L.P. (2010). Multi-lifespan information system design: A research initiative for the HCI community. *Proceedings of CHI 2010 Conference on Human Factors in Computing Systems*, 2243–2246. New York: ACM Press.
- [6] HCI for Peace (2010). *HCI for Peace at CHI 2010*. Available at <http://hciforpeace.blogspot.com/2010/05/hci-for-peace-at-chi-2010.html>
- [7] Hourcade, J.P. and Bullock-Rest, N.E. (2011). HCI for Peace: A Call for Constructive Action. *Proceedings of CHI 2011*. ACM Press: pp. 443–452.
- [8] Hourcade, J.P., Bullock-Rest, N.E., Friedman, B., Nelson, M., Shneiderman, B. and Zaphiris, P. (2011). HCI for Peace: From Idealism to Concrete Steps. *Extended Abstracts of CHI 2011 (Panel)*. ACM Press: pp. 613–616.
- [9] ITU. *The World in 2010. ICT Facts and Figures*. <http://www.itu.int/ITU-D/ict/>
- [10] Jayatilaka, L.G., Bertuccelli, L.F., Staszewski, J. and Gajos, K.Z. (2011). Evaluating a pattern-based visual support approach for humanitarian landmine clearance. In *Proceedings of CHI '11*. ACM, New York, NY, USA, 453–462.
- [11] Moraveji, N. (2011). *Calming Technology*. <http://calmingtechnology.com/>
- [12] Stiglitz, J.E. and Bilmes, L.J. (2008). *The Three Trillion Dollar War: The True Cost of the Iraq Conflict*. New York: Norton.