



The Editor's Spotlight: TOCHI Issue 24:5

Well, another CHI deadline—can it really be for the 2018 proceedings already?—has come and gone. And having participated in this particular conference since 1994, I can assure you that the deadline never really gets any easier.

But at least we no longer have to FedEx expensive color copies and multiple VHS tapes the day before ... I'll take the occasional hiccups of digital submission through PCS (Precision Conference Solutions) any day.

As luck would have it a number of my on-going projects were out of sync with CHI this year, which means The Deadline wasn't quite as ugly for me as usual. But now of course this also means that I'll be doubly busy for other perennial favorites such as UIST (User Interface Software and Technology, a venue that has more or less made my career) when the deadlines roll around this spring.

So, since the nice weather in the mountains surrounding Seattle is fleeting, and time is already otherwise short, let me assure you that the impressive topography of Volume 24, Issue 5 contains the usual bounty of insights, and get right to it:

**OVERVIEW OF VOLUME 24, ISSUE NUMBER 5:
EYE TRACKING FOR THE CROWND USING MOUSE CLICKS,
PERSONALIZED PERSUASION IN SERIOUS GAMES,
A REVIEW OF THE EXPERIENTIAL COMPONENT IN HCI,
USING COMPUTATION TO HELP SELECT FUNCTIONALITY, AND
ANNOTATION AS IMPLICIT INTERACTION DURING 'CLOSE READING'**

Bubbleview: An Interface for Crowdsourcing Image Importance Maps and Tracking Visual Attention. Eye tracking enables researchers and designers to collect “heat map” data that reveals which areas of a web page, application screen, or information visualization have the most salience to users. But these remain specialized and expensive devices that typically can only be used for laboratory studies with relatively small numbers of users, contrary to the trends toward “big data” and crowdsourcing as a means to study nuanced design choices across much larger populations.

The authors of this article propose BubbleView, which is a technique for using ordinary mouse input device clicks as a proxy for eye tracking data. Although at first blush such a proposal might sound ridiculous, as it turns out it works extremely well and can produce results that are a reasonably proxy for eye tracking data for a wide variety of image types, including natural images, static webpages, and graphic designs.

The trick is to first present a blurred version of the image, and then have participants selectively reveal small “bubbles” (ranging from about 32 to 40 pixels in diameter) at full resolution by clicking the mouse. As the authors show, this tends to work best for directed tasks, but even for free-viewing conditions the results are quite impressive. The authors also demonstrate that this works as well as or better than continuously tracking mouse cursor motion, primarily because mouse motion between points of genuine interest yields data points that are essentially “noise” rather than a signal.

The results of course are not perfect, but across multiple studies that probe a range of tasks, image types, and other comparisons, the authors demonstrate in impressive fashion that

2017 Copyright is held by the owner/author(s).

1073-0516/2017/11-ART31

<https://doi.org/10.1145/3145471>

BubbleView can generate a large proportion of ground-truth eye fixations in a way that is amenable to online crowdsourcing. This opens large-scale studies of the salience of images, or the importance of different parts of a graphic design, in ways that complement what is possible with lab-based eye tracking studies today.

(<https://doi.org/10.1145/3131275>).

Improving the Efficacy of Games for Change Using Personalization Models. “Different strokes for different folks,” as the old saying goes, and so it is for “serious games” that strive to motivate people to make important changes in their behavior.

The reasons is that people are motivated by different strategies. Some are “Conquerors” who do best when benchmarking themselves against friends and peers. Others are “Achievers” who respond better to rewards.

Studying the case of improving healthy eating habits, in particular, this article offers the simple but critical insight that the persuasive strategies employed in “games for change” must be tailored to the player’s personality type. This can be achieved without changing the underlying game mechanics themselves, but when done properly the authors show that personality-tailored persuasion improves the effectiveness in promoting positive attitudes, the intention to change behavior, and self-efficacy. But if people play the same game tailored in a manner that is contrary to their personality, no benefit accrues. Furthermore, the results show that the benefits of tailoring are not merely due to a better player experience, but rather from the choice of persuasive strategy employed.

This important role of personalization, then, should guide the design decisions of game designers and developers if serious games are to have a decisive (and persuasive!) impact.

(<https://doi.org/10.1145/3119929>).

Technology Acceptance and User Experience: A Review of the Experiential Component in HCI. This review article charts new terrain for the field by critically examining two key high-level perspectives governing how individuals use and accept information technology: the *Technology Acceptance Model* (TAM), and *User Experience* (UX). The latter term, in particular, gets bandied about so often these days that it tends to lose any specific meaning, but through excellent scholarship and a unifying vision of information technology, this article provides rich insights about *what* constructs influence the experiential component of human-computer interactions, and about *how* the TAM and UX constructs are related.

Of particular interest in this review are the authors’ astute observations of what has been neglected, such as the near absence of psychological needs and negative emotions in the models. As a “user” myself (when not serving as your Friend and Humble Editor-in-Chief) who may have thrown an unexpectedly “mobile” computer across the room on an occasion or two out of sheer frustration, I can attest that such episodes can have a strong influence on the future use (or the lack thereof) of the technologies involved (grin).

The authors also note that, in the more global perspective often adopted by the models, TAM and UX lack connection to specific use episodes, which remove specific *tasks* or other important details of the *context of use* as explanatory variables. Hence, increased attention to the moment-to-moment vicissitudes that pervade user experiences with technology in daily life comprise an important area of inquiry for the lived user experience.

(<https://doi.org/10.1145/3127358>).

Computational Support for Functionality Selection in Interaction Design. Choosing which among a large set of possible features to support in an application is a difficult design problem. Adding in all possible features is often infeasible due to constraints of cost, and time, and (hopefully) a dose

of good old fashioned design sense. Yet in an application with hundreds of possible commands, precisely which sets of functions should be kept, and which should go? Are there intriguing possibilities that designers fail to consider due to the sheer combinatorics?

This work, then, makes an intriguing exploration of the use of computational techniques to identify sets of functionality that balance usefulness, satisfaction, ease of use, and business value. There has been some prior work on using computational techniques to search for optimal keyboard layouts, for example—an empirically well constrained problem—but in this work the authors go well beyond such efforts by developing an objective function to deal with higher-level considerations at the application level. This objective function is informed by the literature, and by insights drawn out in the course of 10 interviews with professional interaction designers.

The authors then show that integer linear programming techniques can be used to surface diverse combinations of related functionality that designers might not have considered previously. Although the technique currently requires the investment of a couple of hours for designers to rate various qualitative attributes of each function being considered, which is currently somewhat tedious for designers, this thorough work nonetheless makes intriguing progress on a challenging interaction design problem.

It also makes a convincing case that computational techniques—whether we call them “AI” (Artificial Intelligence), “ML” (Machine Learning), or some other less attention-seeking moniker—may spur designers to consider more diverse possibilities. Hence, here we see an intriguing example of a human-AI partnership, where computation can be leveraged as a creative fulcrum for the design sensibilities of a professional interaction designer.

(<https://doi.org/10.1145/3131608>).

Metatation: Annotation as Implicit Interaction to Bridge Close and Distant Reading. This work studies of how annotations are used in the domain of literary criticism, and in particular the analysis of poetry. This is coupled with the design of a pen-and-paper interface (which allows the literary critic to focus primarily on reading), with a digital display (which offers analyses and cross-references, if desired, and only when the user chooses to glance at this secondary display).

In so doing this article yields many design insights for interfaces that support mark-up, note-taking, cross-referencing between information sources, and other activities that take place at the intersection of reading and writing. Of course, such patterns of activity are not unique to literary criticism, but pervade much of knowledge work, and indeed characterize many creative professions.

In the literary criticism world, this is known as “close reading,” which is somewhat similar to the concept of “active reading” in the HCI literature—that is, intent, purposeful reading to make connections and draw out insights.

But there are important differences as well. In particular, literary critics are often concerned with how the writing itself “works”—how the linguistic, spatial, and structural features of a text interact with one another to create a specific meaning that elicits the poet’s intended sensory or emotional response in the reader.

Furthermore, critics may be concerned not only with a single poem, but also how a technique is used across a corpus—such as Shakespeare’s references to *heaven* and *hell* in his 154 sonnets. The authors show that annotations can be leveraged as implicit queries that provide in-context cues of what interests the reader, allowing specific connections to be made to other documents in a corpus.

Critically, this clever use of annotations as a contextual cue allows the reader to stay in control of what type of connections are inferred, and when they are surfaced for “distant reading” of related texts, or patterns across texts.

But just as importantly, this design leaves the reader free to *ignore the technology* and remain fully focused on the primary task of close reading.

Such a lesson strikes this editor-in-chief as an important anti-trend to focus on in an era when attention spans are ever-dwindling, “people don’t read anymore” (as some would have it), and all manner of interruptions plague much of our day-to-day interactions with technology.

(<https://doi.org/10.1145/3131609>).

* * *

I must admit, reading all the article’s in this month’s TOCHI has been a nice escape for me. It seems a rare luxury to be able to concentrate purely on new research developments.

Meanwhile, in a stunning surprise to absolutely no one, Puerto Rico lies in waste without food, water, or electricity—while America’s notorious Tweeter-in-Chief rants from his golf course about professional athletes exercising their constitutional rights to freedom of speech. And when not occupied with that important task, the orange menace busies himself trying to instigate a nuclear war.

This is not the America I grew up with, nor in which my children should have to spend their future. And since I have little confidence this situation will soon improve, we instead have to band together and help one other.

I can only hope that you will reach out to someone in need around you and choose to do the same.

Ken Hinckley

Editor-in-Chief

Redmond, Washington

September 25, 2017