



A supplement to *interactions*



SIGCHI Bulletin is published by
ACM SIGCHI, the Association for
Computing Machinery's Special Interest
Group on Computer Human Interaction

<http://www.acm.org/sigchi/bulletin>

January/February 2002

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In this Issue

- SIGCHI chair steps down
- Reflections on Sept. 11th
- new Social Issues column
- ... and more columns and information

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From the Editor

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After the Attack

You and I both expected this column to be the next installment in my reports on interesting trips around the world of CHI. And, indeed, those trips have continued. In the March/April issue, I will write about the marvelous HCI lessons I learned in Sweden, Austria, Germany, the Netherlands, and, by then, in France and Belgium as well. But this column is pre-empted by other concerns.

Many of the columns in this issue reflect on the terrorist attacks of September 11. I claim no credit here -- this issue is not an organized response, rather the force of events motivated many of us individually to write. It is particularly timely, and I am particularly glad, to welcome Matt Jones as our Social Issues editor. Social issues and HCI are tightly connected, and I look forward to his insights, and to his coordination of the contributions of the broader CHI community.

As for me, I'd like to share two sets of experiences with you. I arrived in Stockholm on September 10, and arrived at a research institute shortly after the attacks on the 11th. For the next week and a half, both across Sweden and in Germany, I was overwhelmed by the seemingly bottomless well of support I witnessed, and by the outpouring of concern and support I received personally. Life did indeed go on, but not as usual. People interrupted their days for moments of silence; conferences that continued as scheduled to avoid yielding to terror still acknowledged the loss and suffering; and people in the street, upon detecting that I was an American, rushed to extend their sympathies, often telling stories of how they feel they owe America a debt of gratitude.

This first experience has little to do with HCI, but it has a lot to do with SIGCHI. SIGCHI is a community, and communities are filled with people: individuals who in coming together have an effect on each other's lives. Sadly, we still do not know the extent of losses in our community. With time we will discover losses that make our community poorer, but we are also discovering the strength of bonds that make our community both strong and worth having. Less than a week after the attack I attended the European conference on computer-supported cooperative work. It was an easy decision to attend; after all, I still couldn't fly back home. But it was also the right decision. The community that gathered was for perhaps the first time all too aware of how valuable it was to meet together. I

repeated this scene at another conference, and plan to continue doing so throughout the year.

A lesson, I hope, is that terror and fear should not keep us from getting together. No. Rather it is when we have such fear that getting together as a community becomes more important. As you'll read in columns in this issue, the technology and techniques of our field can help change the world, but they won't change anything until we come together to apply them. I hope I'll see you at CHI 2002!

My second experience was quite different. For many years, I've been conducting research in the area of collaborative filtering recommender systems. That's a fancy term for systems that use the opinions of a community to help individuals evaluate choices of products or information. I've understood for some time how valuable such systems can be in the commercial world; such technology has been used for wide-ranging applications including knowledge management and suggestive selling.

But I was not prepared for a question I received--not once, but twice--during my most recent trip through Europe. I explained the concept of collaborative filtering, the basic idea that the system identifies people who share your tastes--your "neighbors"--based on patterns of past preferences or behavior, and then uses those people's opinions to predict what else you'll like. I've explained this dozens if not hundreds of times before. But this time the question and its significance were different. "Could this be used to identify likely terrorists?"

Pause, regroup, think. *Could it?* What would it mean if this technology I've been developing could help protect people from harm? But what would it take to do this? Besides a population of known terrorists, we'd need a broad source of behavioral data. Are we as a society ready to turn over records of financial transactions? transportation? or what else?

After some thought, it became clear that this wasn't a far-fetched idea, but that it has huge ramifications for a free society. Indeed, governments are already using profiling tools to try to detect suspicious passengers on airplanes. And psychologists use tools very much like ours as part of diagnosing problems in patients. And I've already seen cases of bank records used to track down criminals. Still, the question persists -- am I doing something that could protect people? Time will most certainly tell.



From the Chair

Marilyn Mantei Tremaine
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A Time to Say Goodbye

It is with great regret that I am announcing my resignation as chair of SIGCHI. When I ran for office I was completely committed to carrying out the job of chair for two additional years. However, a number of events in my life have made it extraordinarily difficult to continue in this position. As our members can guess, doing an effective job of running SIGCHI takes an inordinate amount of time. I have just taken on a new position heading the joint HCI program between the New Jersey Institute of Technology and Rutgers University. I did not know that I would be offered this position when I ran for office, but now the consensus of both me and the Dean of the College of Computing at NJIT is that there is not enough time in my life to do an effective job as both director of this program and chair of SIGCHI. In addition, my husband and I have been carrying out a large amount of elder care for the past ten years. Unfortunately, the time and effort needed for this care has suddenly increased, decreasing even more the amount of hours I have available for SIGCHI.

I am delighted to say that the SIGCHI chair's position will be in very competent hands, that of SIGCHI's Executive Vice Chair, Kevin Schofield. I have been busy transferring my experience in running SIGCHI to him and am pleased with the new directions he will be taking SIGCHI. His focus is on serving the SIGCHI membership in more and better ways than SIGCHI has done in the past.

Both Kevin and I have restructured the organizational body of SIGCHI in order to make it run more efficiently and cost effectively. We have taken a top heavy administrative unit and created a hierarchical management structure that gives volunteers more autonomy and allows far more volunteers to be active within the organization. We have also taken more fiscal control over the operation of SIGCHI so that we can see where SIGCHI's money is being spent on a more timely basis and therefore keep costs in control and also make sure that money is being spent on the membership goals we have established.

In an earlier column, I wrote that one of SIGCHI's problems is that of elected officers continuing to stay in office for year after year. I strongly believe that a professional organization stays a healthy organization if it turns over its leadership on a regular basis. This last election brought in a set of new and very talented people to run SIGCHI. I remain as the last of the old guard, so, in turning in my resignation, I am also following my own beliefs.

What will happen with my resignation? First, the bylaws of ACM and SIGCHI will put Kevin Schofield, Executive Vice Chair in the position of Chair. After this, since the position of Executive Vice Chair will be vacant, Kevin will select a new individual to fill this role. With the approval of the elected board, this person will be put forth for approval by ACM. I'll move to the position of Past Chair. Thus, your votes for elected officers and the platforms they have run on will remain the same.

Finally, let me say that I am very saddened to have to step down. Although chairing SIGCHI has been an incredible roller coaster road fraught with politics and differences of opinion, it has also been very rewarding and much has been accomplished. During my tenure, we increased membership significantly, we gave our members more services and we sponsored more conferences, all with growing attendances. It has been a fun time.

Goodbye,
Marilyn Tremaine

Local SIGs

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<http://www.acm.org/sigchi/local-sigs/>

2001-2003: The Next Two Years for Local SIGs

For the November-December '01 issue of SIGCHI, Richard Anderson wrote an overview of what has happened to the world of CHI Local SIGs in the last five years while he was Local SIGs chair. By reading the column one can see how much work, effort and enthusiasm Richard has put into supporting CHI Local SIGs and improving the relationship amongst chapters, SIGCHI and ACM. It has definitely paid off, and it is amazing to see how much this relationship has changed (for the better) in those 5 years. For all of us who have worked with Richard, reading the column might have brought a better understanding of the whole picture. However, it was still short in translating into words how supportive and collaborative he has been, working closely with people from all over the world in creating, supporting and improving not only our Local SIGs, but in many cases our local HCI communities. I believe I speak for all people who are or have been Local SIGs chairs and their communities when I say: Richard, thank you so much for all your hard work -- you have made a huge difference to us and HCI around the world!

Having said that, you can understand the tight spot I have gotten into. Following someone like Richard is not an easy job. The first step, which I have taken, is trying to understand all that is involved in being Local SIGs chair. By this I mean not only learning the list of tasks to be performed and issues to be dealt with, but their goals and implications, actions required and people involved. At this point, although I am sure there is more to learn, I believe I understand enough that I feel that I can continue the good work Richard has done all these years. In this column I would like to outline my vision for CHI Local SIGs in the next two years.

The first point I would like to explain is why I am talking about two years and not five. The Local SIGs chair was an Adjunct Chair position, which was an appointed position and was part of the SIGCHI's advisory board and Extended Executive Committee. SIGCHI Executive Committee has given the Local SIGs chair a Vice-Chair status, making it part of SIGCHI Executive Committee. This change has been proposed (among other changes) to SIGCHI by-laws that should soon be put to a vote by SIGCHI's membership. This will make the Local SIGs chair position an elected vice-chair like the other SIGCHI vice-chairs. This is a way of SIGCHI acknowledging the importance of the Local SIGs around the world and giving us a stronger voice within SIGCHI and ACM.

As Vice-Chair of Local SIGs I intend to follow Richard's steps and do my best to keep up the good work he has done in the last five years and continue working on issues, ideas and initiatives he has been discussing with us (Local SIGs chairs) and SIGCHI. In particular, I would like to highlight some points that I find particularly important:

Support Local SIGs diversity

Local SIGs have many differences among themselves, such as goals, culture, location and number of members. Thus, their challenges, opportunities and need for support vary greatly. As the number of Local SIGs increase in the world and SIGCHI becomes more international, it is very important that we focus on how to support each and every local community. One other important factor that comes into play is that dealing with the

same problem in different locations may require different approaches. Thus, we can only go forward if we all (Local SIGs and SIGCHI) work together on this.

Support Local SIGs unity

Although there are differences, there is a lot in common among the Local SIGs as well. I believe we have to look at the issues that we all share, so we can work on them and generate benefits to all of us. One thing that I see happening and would like to foster is the collaboration between Local SIGs. I have already learned of Local SIGs with similar challenges exchanging experiences and helping each other to go forward, and now we have some Local SIGs working together in organizing events. We can find a lot of support among ourselves!

CHI Local SIG Congress

Richard has discussed for some time the idea of forming a body of representatives that would provide guidance to SIGCHI, ACM and CHI Local SIGs. I intend to explore that idea and put it to practice. We now have 59 Local SIGs and it is very hard for a single person to be able to understand the particulars and needs of each individual group, as Richard did. Thus, I intend to have a group of people working with me so we can work closer to each Local SIG than I would be able to on my own. I am expecting to take the first steps in implementing this idea by the beginning of 2002.

The annual Local SIG workshop at the CHI conference

Richard has organized this workshop from 1996 to 2000, and in smaller meeting format this year at CHI 2001. As a Local SIG chair, I have always found the workshop to be great because we had the chance to interact face to face with other Local SIGs chairs, as well as other SIGCHI and ACM representatives. Learning about other Local SIGs was great because we had the chance to talk about what worked and what did not and gain new insights on how to deal with our own challenges and opportunities. Furthermore, we could pinpoint the Local SIGs that had more in common with our own Chapter and exchange experiences throughout the year. Having the chance to interact with different SIGCHI and ACM representatives helped us understand better the organization, as well as issues and benefits involved in being part of it. The organization for the Local SIGs workshop in CHI 2002 is already on its way. I hope all Local SIGs chairs can start making plans to attend.

Support HCI around the world

One of SIGCHI's goals is to foster HCI around the world and support the field and its professionals. I believe that Local SIGs play an essential role in working towards this goal. I have heard many people talk about the importance of doing more in that direction. Thus, I want to encourage us to discuss and come up with ideas of whether we (Local SIGs and SIGCHI) can do more towards achieving that goal and if so, what.

Finally, I would like to say that I am honored to be the Vice-Chair for Local SIGs and that I will do my best to do a great job. I would invite every member of SIGCHI and/or of the Local SIGs to help me be successful. Please help me learn more about each and every Local SIG and let me know any suggestions, ideas and comments you may have.



Computers and Kids

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When Technology For Children Doesn't Seem So Important

September 11th

I felt fortunate to have a 2-year old child on Sept. 11th. While most parents were faced with the challenge of explaining the tragic events of the day to their children, I could merely explain that mommy just didn't want to watch *Sesame Street* like she normally does. I didn't have to explain the hate that provoked this tragedy and the sadness so many people felt about it all. My 2-year old understands when someone "isn't nice" or when she is "naughty for not sharing", but how could she understand this?

On that day, so much felt unimportant, even the yearly ritual of writing my CHI paper about technology and children. All I could think about were my family and friends in New York City and at the Pentagon, my parents stuck in the Midwest without a plane ride home, and my graduate student (and paper-first-author) on his way back from Europe exactly at the moment this all happened.

By the time you read this hopefully all may seem right with the world (or at least almost right), but for the first time in a long time, I wanted to write my Bulletin Column long before the submission deadline (yes, Editor-In-Chief Joe Konstan, it may seem too weird for words to have this submission waiting for you). But I wanted to capture what many of us were feeling, before the feeling went away. It's been a feeling that asks us to question: Is what we do for a living, the passion that drives us, the belief that we are changing the world by creating technologies for children—Is that really important? For perhaps the first time in my life, it all seemed a bit trivial. I spent almost a week experiencing the "...why bother?" feeling.

Reflections

As the events of that tragic day sunk in, I was able to talk to people about how I felt. During those conversations, I heard something that helped me. My colleagues kept saying, yes, working on technologies for children won't help the national defense, or security of our nation, but it can help the future. If children can use technologies to better learn about other people, to understand that even if they are different or live a different way of life, that they still care about many of the same things—this can help all of us. Perhaps we can stop hate before it grows up to be a part of adults who do something about it. "But," I asked people, "Aren't these lofty goals for technologies that normally are best at helping children learn math and

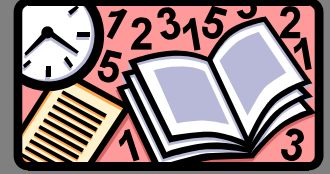
science, draw, or look at pictures?" But as I thought about it, I ran into the words of Edna Apek (2001): **"The new technologies know no stigma and no prejudice and as such easily make possible neutral, less biased communication among groups, which are otherwise quite distant in almost every sense of the word"**.

Apek wrote this in a paper that described *Kamrat*, an ongoing multicultural online learning community, between two schools in Israel: one an Israeli Arab school and the other an Israeli Jewish school. The project was conducted between January and May 2000, with learners who were 12-15 years-old. Thanks to the technology the students in both schools collected sayings, translated folktales, wrote quizzes and taught each other about objects that were important to their families, customs and cultures. The students met online, synchronously and asynchronously and eventually as the project came to an end, they met in person. As one Israeli Arab child wrote, "It was a great meeting. I made new good friends (girls). I hope we'll have more meetings like this one. *Inshalla* [Arabic for "if God wills"]".

As I now write this column almost a month after the events of September 11th, making technologies for kids does not feel so trivial as it once did. I have since found many other technology projects for/with children that promote a better understanding between people, and it is comforting... But those tragic events in September have reminded me why we need to keep questioning: How does creating interfaces for violent games help our world? Why is it so important to teach kids to be better *button-pressers* for better jobs? How can technology for kids help them think about who they are and how they relate to the world? In my columns to come, I hope continue to ask these questions and present to you other research projects that not only advance the research in this field, but also help us to see that what we do with technologies and children can be important to all of us.

Reference

Apek, E. (June 2001). *Kamrat: The Story of a Virtual Multicultural Learning Community in Israel*. *iMP Magazine*
http://www.cisp.org/imp/june_2001/06_01apek.htm.



HCI Education – opportunities for change

It is good to see Matt Jones' new social issues column (page 10). As is clear from my columns, I find that ethical and social issues are inextricably linked with those of both education and our broader professional roles in HCI.

Few of us have not been moved or shaped by events over recent months. This issue will come out in the New Year, a traditional time of hope and new beginnings, but I am still writing in the shadow of the events of September 11th. I'm sure I won't be the only writer in this issue to express sadness and sympathy to all those who have suffered during this autumn of 2001. I only hope and pray that by the time this issue comes to press the world will seem a more hopeful place. And there are signs of hope.

On September 11th I flew out on a 3 week visit to the University of South Africa (UNISA). Before I left the images that flooded British television were of small frightened schoolgirls in Northern Ireland walking to school amidst a hail of spittle and abuse and eventually a blast bomb. Why? Because they were Catholic schoolgirls walking down a Protestant street. However, in recent days, with the announcement that IRA has begun decommissioning their weapons, this terrorist war that has raged for so long and claimed so many lives has taken another step towards peace. I recall as a child the TV images of British soldiers going into Belfast and now see images of army watchtowers being demolished.

South Africa itself is a country of contradictions – very obvious racial and social divisions which will clearly persist for many generations, as they have in the US and UK, yet in the midst of a peaceful process to reverse this which is truly remarkable amidst so much bloody conflict worldwide.

The education system is in the forefront with a generation hitting the Universities many of whom were involved in school boycotts during the end years of apartheid and more still suffering extreme social and educational deprivation. UNISA is a distance education university and as such has a high proportion of black students, many from disadvantaged backgrounds with correspondingly low educational achievement. Many students pursuing computing degrees only occasionally have access to a computer at all. How can the University, and the education system as a whole, offer opportunities fairly amidst such disparity of backgrounds? These are issues which have taxed me in my own country too, especially having worked and studied in range of universities, some catering largely for the socially and educationally elite, and others for less advantaged students.

Equality of opportunity is not about a single choice or offer, but is forged over a lifetime and generations.

Several times in South Africa I was asked by those I met how I found the country and whether it accorded with the images I'd had before I came. My reply was always that I was shocked, but not surprised, at the very obvious racial divisions – just looking at the faces of those driving cars and those walking on the roadside and, in the University, the teaching staff as compared with the security and domestic staff. But also among so many I met, mostly liberal whites, I heard the occasional statement that jarred my ears tuned to 20 years of PC language.

However, I also realised if I changed the word 'blacks' to 'people on social security' or 'working class' these were all statements that would be commonplace amongst professional people in the UK. If in the UK we painted faces depending on social roots, how many coloured faces would there be in our major financial institutions, law courts or even universities? Look too at the student faces in any 'top' US university. As a UK professor with working class roots and 10 years of my childhood on various forms of state support, perhaps I was rather like a black lawyer in South Africa?

With all this still in my mind, on my return I picked a copy of *The Times* on the plane back, only to read the headline* "Professor scoffs at 'useless' degrees". The report quoted Professor Zellick, the Vice-Chancellor of London University, who poured scorn on the UK government's aim to increase the numbers of young people entering higher education to 50% by the year 2010. Significantly, he was talking to headmasters of independent (private fee paying) schools when he denigrated 'useless degrees from third class institutions', comparing the present with a golden age 20 years ago when only around 5% of school-leavers went on to university courses.

So what was the London VC's solution? A return to higher entrance grades at age 18 with the lower achievers sent to vocational institutions. In fact, attainment at age 18 is a far better measure of social class than educational potential. Currently in the UK around 70% of children of middle class professional parents enter universities and less than 10% of those from low-income and unemployed parents. I'm sure the picture is similar in the US, Europe and most countries that aspire to have an open education system.

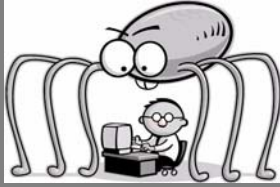
Now it is clear that in the UK we have a higher education system which was well suited to the 1960's with a small highly-selected elite of perhaps 2-5% of students entering universities and not at all matched to the current situation (for example, we have a normal 3 year honors bachelors degree compared with a minimum of 4 years and often longer in most of the world). But the solution must be reform, not retrenchment – a lesson learnt in Pretoria, but evidently not in London.

Now this article on the return plane flight is not unconnected to the events of September 11th on my outward flight.

Throughout recent history, terrorism and guerrilla war has been the response of those (whether their causes have been just or corrupt) who feel disenfranchised and powerless. This has been the case in the Middle East – both Zionist terrorism against the British during the 1950s and more recent Palestinian attacks. It has also been the case in South Africa both during the Boer rebellion against British rule in 1900 and in the ANC struggle against apartheid. And of course the case in Ireland for over a century.

As for those of us who enjoy the privileges of social, economic and educational success – if we choose to pull up the drawbridge behind us, rather than seeking to share our success more widely, then the whirlwind we reap may engulf us all.

*Professor scoffs at 'useless' degrees. Reported by John O'Leary, Education Editor, *The Times*, Wednesday October 3rd 2001, page 13.



Navigational Nouns

(**Nous: n, British informal, practical intelligence.**)

Alan Cooper's October 2001 article on navigation (*Navigating isn't fun*) sparked an interesting discussion on CHI-WEB. Alan's premise was that for most business users, navigation was not something they really wanted to spend time doing. He contrasted business use with casual browsing or entertainment, where navigation adds a certain sense of exploration and discovery. In the subsequent debate, some contributors argued that navigation is necessary to enable users to build conceptual models of a site, especially where they are relative to the whole. Others argued that comparisons with real-world navigation were not necessarily valid and that users did not generally build navigational models in any event.

Elements of Navigation

One reason that navigation is such a difficult topic in general discussion is that the term itself means several different things when we apply it to web sites:

- *Organization* – how we split a large volume of information into categories.
- *Structure* – how we organize categories, e.g. hierarchically, sequentially, or in a network.
- *Presentation* – the type and location of interface elements we use to implement organization and structure. Common approaches are global and local navigation panels, simple links and drop-down menus.
- *Navigating* – the act of moving between and within pages by using interface elements.

Naturally, all four elements of navigation are closely related, but I think what becomes clear is that we need to design the organization, structure and presentation to minimize the amount of actual navigating by users. *Minimize navigation?* Surely, navigation is a key feature of the web. Why would we want to minimize it?

Back to Basics

Let's forget the web for a moment and return to fundamental user interface design. In UID, we presuppose that users have goals they are trying to achieve. We measure the success of an interface by how closely user's goals map onto actions in that interface. We achieve the best results when we organize navigation according to users' expectations, structure it to support common goals, and present it in a clear and familiar way. It is inherent in our definition of success that the less users have to do to reach their goal, the better the interface is.

Doesn't this approach push us towards single-page web sites? Not really. Navigation within a single page is still

navigation. Scrolling down a page has a slightly lower conceptual cost associated with it than following a link, but if the page is badly organized, users may lose interest long before they find what they're looking for.

Just Browsing

What about suggestions that navigating helps users to understand the scope and structure of web sites? There are several issues here:

- Even in the real world, the act of navigating doesn't necessarily reveal structure. Maps are much better for this.
- I'm personally not convinced how interested in the scope and structure of web sites most users really are. They usually have some *purpose* in visiting a web site, even if that purpose is poorly formed. It would be better to investigate your users' motives than to try to reflect your organization's size and complexity in your site's navigation.
- Jared Spool and his colleagues at User Interface Engineering have compelling evidence that users don't really put that much effort into understanding where they are. They are mostly interested in where they want to be. (See UIE's recent report, *Getting Them to What They Want* for more details.)

Minimal Navigation in Practice

If we accept that minimizing the act of navigation is a good thing, how best to achieve it? Here are some practical suggestions borne of my own frustrations at having to change pages when I didn't want to:

- Don't be frightened of making pages longer if it means that all of the relevant information can be put on one page.
- Adopt an "inverted pyramid" structure within pages. This means putting all of the important information first. As users progress down the page they should get an expansion of the main points. On product-related pages, put the price and comparisons with other products at the *top* of the page.
- Get users' goals, categories and navigational expectations from users (more of this in the UIE report as well). Don't just assume that any reasonable person would want it the way you've designed it.

Web Links

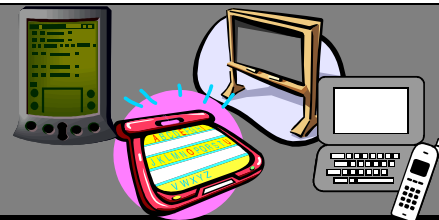
CHI-WEB: <http://www.sigchi.org/web>

Cooper Interaction Design: <http://www.cooper.com>

User Interface Engineering: <http://www.uie.com>

Beyond the Desktop

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Report from Ubicomp 2001 Workshop: Evaluation Methodologies for Ubiquitous Computing

by Jean Scholtz and Heather Richter

Ubiquitous computing brings together a number of research communities focusing on a variety of aspects such as sensors, networking, systems, and applications. While it is obvious that researchers from these various communities will need to coordinate and communicate to achieve the goal of ubiquitous computing, it does not diminish the difficulty of the task. We propose that one way to bring about a larger sense of community is through the development of evaluation programs. This includes participation of the researcher community in determining what to test, how to test, and appropriate metrics to use. This activity helps to focus the research community and also helps to show progress in the area.

Interactive systems, and in particular, ubiquitous computing, pose complex evaluation methodologies. We need to agree upon the dimensions for evaluation -- metrics that are useful for researchers and meaningful from the end-user perspective. Evaluation methodologies, including analysis tools, reference criteria, and data capture methods, will most certainly be needed. The goal of this workshop was to identify possible evaluation methodologies and metrics and to identify needs within the evaluation community. The position papers highlighted the range of perspectives that can be evaluated, from measuring network performance to the impact on users. Each level involves different kinds of data collection and evaluation methodologies. The challenge is in relating these perspectives into a coherent evaluation program.

Workshop participants at the recent Ubicomp 2001 conference held in Atlanta formulated the beginning of a framework for evaluation. This framework is by no means complete, but should serve to illustrate the dimensions the participants felt were those that pertained to ubiquitous computing, namely universality, utility, usability, and ubiquity. For each dimension we included a brief description and several relevant metrics. As these dimensions and metrics are valid for interactive systems in general, we then listed the new challenges in the evaluation of ubiquitous computing systems. Finally, we listed needs for tools or methodologies to facilitate evaluation.

Universality

Universality refers to the domain of the application: "who" the users are. Ubiquitous computing applications broaden this domain to include a variety of users if many different settings. This adds new and unexplored use

cases, where the workload, metrics, and stress points of such systems are not currently identified. We need new prototyping tools to more quickly and thoroughly explore these different domains to create these evaluation data points.

Utility

Utility is the benefit to the users. Ubiquitous computing extends technology's benefits to a variety of situations and activities. Beneficial applications must provide appropriate, situated interactions. Understanding the impact of applications involves understanding the effects of the technology on all of the surrounding activities. This means more than just the user's interactions must be recorded, but their overall activities. This pushes on tools to evaluate activities, not just interactions.

Usability

Usability involves the amount of effort required for the utility gain. There are many established usability metrics that apply to ubiquitous technologies, such as robustness, predictability, and obtrusiveness. The challenge, again, is that the interactions are more task-specific and varied. How do we capture user's intent in such situations? Tools are needed to record and visualize all of the different streams of information surrounding a user.

Ubiquity

Ubiquity involves the points of delivery in the physical world: "where" and "when" the technology exists. Important metrics here are graceful degradation, as different locations will have different capabilities or connectedness. There are a large set of degraded operating modes which we need some way of simulating and evaluating. This workshop was an early step towards forming a more comprehensive evaluation program for ubiquitous computing. Please visit the web site, <http://www.nist.gov/ubicomp01>, to view the details of the workshop, for notices of future activities, and to contribute to this ongoing discussion.



Hopeful Design -- Making The World A Better Place

Human-Computer Interaction is the noble face of Computer Science. It's the part that can bring hope to an increasingly push-button world that often seems frustrating and confusing to users.

Most of us who research and practise HCI probably do so because we want to make the world a better place. Sure, we are 'user-centered' in our practices but our outlook is much broader – we are community and society oriented.

Whenever I give a course on HCI, it's not the financial and productivity paradox justifications which excite students. They really see the point, though, of trying to ensure interfaces don't delay, annoy or even kill ordinary people like themselves. They are enthusiastic about "making a difference".

This new column looks at HCI from the broader social perspective. The aim is to motivate and encourage us to keep focused on the positive vision of HCI: to make our users' lives, our communities and our society better.

Some of us have the chance to make a clear social contribution in our work. A current grad student at CMU has a 3-week internship working with airline ticketing: she can help infuse HCI into an area that now is highlighted as part of the international war against terrorism. We don't want usability errors getting us arrested!

I work at the Digital Library Lab in Waikato University (www.nzdl.org), New Zealand, where the research is driven by a desire to empower end-users. Take just one of the projects where the team is working out how to develop a collection of conversational statements. The user cannot speak, gesture or communicate in anyway apart from through a limited head movement. There are many interface design problems: what's the best-input device? how do you provide search term entry? These are fascinating in themselves and raise challenging social and ethical issues (like ensuring the user can choose and change what she can say).

Since the terrorist actions of September 11th, many have suggested that "personal technologies" – wearable radio-transmitting ID cards, biometric scanners and the like – be deployed to increase safety. The British Government is thinking of being the first to introduce a "citizen card" with built in-iris scan. The card will not just be used at airports but to access services like health and education.

These devices do offer potential gains to users. There might be smaller queues at security checkpoints because the checks can happen automatically via radio transmissions and users might feel safer carrying one.

However, in a world where much less complex interactive systems (like the videocassette recorder) cause problems, these wide-ranging systems might lead to serious user difficulties. If you fail to operate your VCR you simply miss a TV program; if you can't work your ID card, then you will be delayed, detained or even denied services. If such systems are developed, let's hope skilled interaction designers are employed.

Most of us most of the time, though, will not be involved in systems with such an obviously social impact. Even so, the interactive designs we create and the way we create them can have far-reaching social implications.

Consider this design scenario. You are a mobile telephone interaction specialist. You notice users have to press many keys to access functions via hierarchical menus. Now, a few wasted seconds everyday for one user might not seem too significant, but taking a society viewpoint, if every phone owner in the world wastes a few moments, lifetimes of human potential are lost everyday. Your design halving the number of keystrokes is a powerful force for good. Milliseconds matter.

Now consider design methods. Good practice (and manners) when dividing a cake to share with a friend is to have one person cut the cake and the other choose the first slice. When you are designing an interactive system, similar social and ethical protocols might help. Harold Thimbleby, now Director of the UCL Interaction Design Centre, London, for instance has proposed "just design" – if designers plans a system as if not knowing whether they will be its operator or user, better designs might ensue: I'll leave the full argument to his Interact'99 paper at <http://www.cs.mdx.ac.uk/harold/srf/Justice.pdf>.

"Changing the world, changing ourselves" is the CHI 02 conference theme. Over the coming issues, this column will explore what such hopeful slogans might mean. If you are interested in contributing, please send me an email. The next deadline is December 10th, so send material while it's still fresh in your mind. When you hear news and you think: if only they knew some usability — drop me an email about what the idea is.

SIGCHI Minutes

Mary Czerwinski, SIGCHI Vice Chair of Communications
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Meeting of the SIGCHI Executive Committee August 11-12, 2001 (handoff and planning meeting)

Handoff Meeting. The "old EC" presented its accomplishments of the last two years, focusing on helping the new EC capture momentum and carry it forward. Discussion included the changes in the Bulletin, dramatic increase in non-North American membership, focus on the design community, and continuing web redesign. Other successes included the launch of CHI Letters, the creation of the CHI Academy and Lifetime Achievement awards, development on new relationships with peer organizations, and sponsorship of a diverse set of specialized conferences.

DIS 2002. SIGCHI allocated \$15,000 to support the publication of a high-production proceedings for DIS -- one that would be published and sold as a book. This is a pilot effort to attract serious designers to the conference and proceedings; future years' conference budgets will include this cost.

Travel. The SIGCHI EC approved a new travel policy to clarify the expenses that SIGCHI will reimburse for volunteer participation in EC meetings.

ACM Portal. SIGCHI allocated \$46,000 this year, and \$5000 next year to a SIG Governing Board initiative to make the ACM Portal free for five years, and place it under a SIGGB-organized Portal Management Board. ACM is otherwise proposing to pay for development centrally and increase digital library prices. No costs will be incurred unless ACM accepts this initiative.

CHI 2002 Requests. The SIGCHI EC approved an experiment of putting a subset of accepted papers on the web prior to the conference (subject to author agreement). The primary goal is to help seed discussion, and prior experience has shown that this may help conference attendance. Other noted benefits include access for blind attendees, and help for non-native English speakers. This will be handled as an experiment with surveys to evaluate its success.

The conference also requested that Extended Abstracts material be added into the digital library. Discussion raised the issue of making sure that users would know whether a downloaded article was part of the proceedings (and therefore CHI Letters) or not. The EC conditionally approved the request subject to the requirement that the downloaded (and printed) EA content explicitly indicate that it came from the EA. The EC deferred the issue of scanning in prior years' EA volumes for one year to see how things work with the CHI 2002 abstracts.

The EC allocated up to \$10,000 for a "20-years-of-CHI" celebration at CHI 2002. The EC rejected the idea of a related video, and will explore creating a CD-ROM of influential papers. The EC asked the CMC to look at discounts for soft-currency country attendees.

Meeting of the SIGCHI Executive Committee October 9, 2001 (conference call meeting)

SIGCHI Staffing Change. Alisa Rivkin is leaving ACM as of October 12, 2001. She was thanked for her help to SIGCHI. [It was later determined that Erica Johnson would serve as SIGCHI's ACM liaison.]

AIGA Cooperation Agreement. SIGCHI approved an agreement with AIGA to conduct a joint mini-conference at CHI 2002, and to work together on additional collaborations as appropriate in the next year.

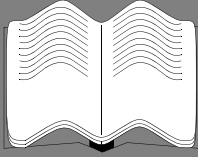
Branding RFP. Four responses were received to the branding RFP; the branding committee recommended that we award the bid to Process 39, because of their price and their reflection of SIGCHI in the work they've done (they also did the CHI booth design that debuted at the SIGGRAPH conference). The EC approved awarding the contract, for \$45,000, to Process 39 (this is an increase from the original budget due to increased SIGCHI demands added to the proposal).

Web Repair and Redesign. Web repair has been largely stopped, since it turned into a second re-design. We are now focusing only on fixing actual bugs in content and navigation. Web. The next critical step in redesign is getting a web editor in place, and forming the web management committee.

Trip Reports. Joe Konstan reported on discussions with members of local SIGs and other local organizations. One recurring theme is that we aren't doing enough to help professionals in their quest to develop skills and justify their training and professional needs to their own management. The ensuing discussion raised a number of areas in which we could improve our support for professionals. Also discussed was a preliminary proposal to conduct a joint cross-membership drive with a local organization.

Chair Resignation. Marilyn Tremaine indicated that she was resigning as SIGCHI Chair effective next month, because her new job and responsibilities do not allow her to also spend the time needed to be an effective chair. Kevin Schofield will assume the position of chair. Based on ACM's procedures, Kevin will appoint someone to fill the rest of the term as executive vice-chair; he indicate that he would bring that appointment to the EC for their approval, and the final approval is made by the chair for the ACM SIG Governing Board. [Marian Williams has subsequently been appointed as Executive vice-Chair.] Marilyn reviewed pending items, including budgets and award committees.

Note: These are summaries and highlights of the SIGCHI EC minutes. Complete minutes can be found on-line at: <http://www.sigchi.org/documents>



Review of: *The Humane Interface: New Directions for Designing Interactive Systems*

By Jef Raskin

Review by Dan Brown

Raskin, J (2000). *The Humane Interface: New Directions for Designing Interactive Systems*. New York: Addison-Wesley. ISBN: 0201379376; US\$24.95 (paperback).

The concept of a Humane Interface refers to human-computer interactions designed to address nuances of the human mind. As a book, *The Humane Interface* walks the reader through fundamentals in the study of cognetics and builds a design philosophy on that foundation.

Like most other interface design books, *The Humane Interface* starts with an example of bad design (in Raskin's parlance, *inhumane* design). Raskin describes an airplane from hell that includes lush seating, five-star cuisine, as much in-flight entertainment as your senses can handle, and not a lick of aeronautical engineering. Raskin's introduction to *The Humane Interface* likens such an aircraft to current trends in design: it all looks so pretty, but we users would sacrifice it all for software that works effectively.

Beyond the bad design horror story, Raskin's introduction caveats the reader that despite industry-wide enthusiasm for emerging collaborative technologies, "the design of single-user interfaces is not a solved problem" (p. xix). To solve the problem, Raskin asks us to look at underlying engineering fundamentals.

In the book's first chapter "Background," Raskin first defines interface as "the way you accomplish tasks with a product" (p. 2). "An interface is humane," he says shortly thereafter, "if it is responsive to human needs and considerate of human frailties" (p. 6). Raskin recognizes that a successful interface must first take into account the limitations of the human mind and build on its strengths before it can address the needs of particular tasks. The design of an interface must start with an understanding of humans in general, before it can be served by an understanding of users in particular.

This first chapter contains three laws of interface design, which capture the three basic ways in which users do not have control over the way they accomplish tasks.

- A computer shall not harm your work or, through inaction, allow your work to come to harm: In some cases, the product's interface prevents the user from accomplishing tasks by prioritizing its own processes over protecting the work. Raskin refers to the endless back-up procedures employed by computer users.

- A computer shall not waste your time or require you to do more work than is strictly necessary. In some cases, the product's interface introduces obstacles to accomplishing a task.
- Users should set the pace of interaction. Pointing most particularly to start-up times, Raskin suggests that interfaces should neither slow the user nor hurry the user in accomplishing tasks.

With the basics of humane design in place, Raskin builds his argument over the remaining seven chapters. Chapters two, three, and four, "Cognetics and the Locus of Attention," "Meanings, Modes, Monotony, and Myths," and "Quantification," each establish a different vocabulary for talking about interfaces. These useful tools provide a framework for the discussion of the second half of the book, which addresses common interface problems. In Chapter 2, Raskin introduces us to the study of cognetics, which he defines as "ergonomics of the mind." Raskin says that most interfaces are designed as if we "have cognitive abilities that experiment shows we do not possess" (p. 10). Habit-forming, as Raskin points out, is one cognitive ability that we do possess. He believes that designers do not take habit-forming into account when they create interfaces. On one hand, features that are meant to protect our work ("Are you sure you want to delete this file?") become meaningless as users click "yes" without thought. On the other hand, interfaces that offer several ways to accomplish the same task are not designed to encourage habit forming.

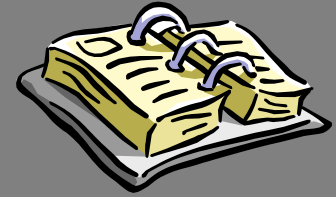
Perhaps the most important concept from cognetics is the locus of attention. Whatever occupies our locus of attention is whatever we are paying attention to at any given moment in time. Often, our locus of attention is beyond our control. For instance, Raskin mentions the buzzing of fluorescent lights and suddenly it is noticed because his stating it has brought the sound to the locus of attention. The sound has been there all along, but until he mentioned it, it went unnoticed, outside the locus of attention.

The more a person is absorbed with the locus of his attention, the less likely he is to notice distractions. Absorption increases with stress and the importance of the task. Raskin concludes: "if the computer behaves unexpectedly while you are using an interface, you become less likely to see hints, help messages, or other user aids as you become increasingly agitated about the problem" (p. 27).

continued on-line: www.acm.org/sigchi/bulletin/2002.1/review.html

Events

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Upcoming Events:

January 13 – 16, 2002

IUI: Conference on Intelligent User Interfaces
International forum for research on intelligent user interfaces.
San Francisco, California, USA
<http://www.iuiconf.org>

March 24 – 28, 2002

IEEE Virtual Reality
Conference featuring research on all aspects of virtual reality, from hardware implementation to 3-D HCI.
Orlando, Florida, USA
<http://www.vr2002.org>

April 3 – 5, 2002

Ergonomics Society Annual Conference
Conference to support the professional development and research of practitioners in ergonomics and human factors.
Cambridge, England
<http://www.ergonomics.org.uk/events/confcall02.htm>

April 20-25, 2002

CHI: Human Factors in Computing Systems
ACM SIGCHI's annual conference on all aspects of computer-human interaction.
Minneapolis, Minnesota, USA
<http://www.acm.org/chi2002/>
<http://www.chiplace.org>

May 15 – 17, 2002

CADUI: Conference on Computer-Aided Design of User Interfaces
International conference bringing together methods and theory of user interface design.
Valenciennes, France
<http://belchi.qant.ucl.ac.be/cadui/>

May 27 – 29, 2002

Vision Interface 2002
Conference on all aspects of computer based vision interfaces, including HCI and computer graphics.
Calgary, Alberta, Canada
<http://www.visioninterface.org/vi2002>

June 25 – 28, 2002

DIS: Designing Interactive Systems
Conference discussing the process of designing interactive systems in the context of real world practice.
London, England
<http://www.acm.org/sigchi/dis2002/>

July 8 – 10, 2002

Assets: Conference on Assistive Technologies
ACM SIGCAPH conference about computer-based systems designed to address the special needs of people with disabilities.
Edinburgh, Scotland
<http://www.acm.org/sigcaph/assets02/>

July 8 – 12, 2002

Usability Professionals Association
Annual conference focused on exchange of ideas among usability professionals.
Orlando, Florida, USA
<http://www.upassoc.org>

July 21 – 26, 2002

ACM SIGGRAPH
Conference showcasing the latest developments in computer graphics and interactive techniques.
San Antonio, Texas, USA
<http://www.siggraph.org/s2002/>

August 25 – 30, 2002

IFIP World Computer Congress
Conference with special streams in telelearning, e-business, intelligent information systems, computers and society, and usability.
Montreal, Quebec, Canada
<http://www.wcc2002.org/>

September 2 – 6, 2002

HCI 2002
Conference by the British HCI Group covering all aspects of HCI.
London, England
<http://cise.sbu.ac.uk/hci2002/>

September 23 – 27, 2002

Human Factors and Ergonomics Society Conference
Conference that brings together research by human factors, ergonomics, and HCI practitioners.
Pittsburgh, Pennsylvania, USA
<http://www.hfes.org>

October 19 – 23, 2002

NordiCHI 2002
Conference highlighting Scandinavian contributions to HCI, which a particular emphasis on design.
Aarhus, Denmark
<http://www.nordichi.org>

To submit an event listing, send email to:

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SIGCHI & acm

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C&C: Creativity and Cognition (October)	\$14 <input type="checkbox"/>	\$4 <input type="checkbox"/>
CSCW: Computer Supported Cooperative Work (December; even years)	\$17 <input type="checkbox"/>	\$7 <input type="checkbox"/>

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Loops

Right from the start of web publishing, standard structures of information were quick to emerge. Probably the most basic of these was the chain; a linear related sequence of chunks of information. Think of stepping through back issues of an on-line magazine, think of clicking 'next' and 'previous' to scan through a collection of photos. The sequence is a very basic organization of information. I do not claim to be an information historian, but I suppose it could have had something to do with the switch from scrolls of parchment to pages.

(Although didn't Moses have a sequence of separate stone tablets when he descended from Mount Sinai?).

The shift to separate pages does make information more manageable if it comes with a way of holding those pages together in some way. Without a binding technology, a collection becomes difficult to keep in order.

Think of flicking through someone's photos in a group of people while the owner shouts "Try to keep them all in order!".

Organizing information in one big chunk and presenting it as a continuous scroll does have some inherent design advantages, though. Scrolls are not bound by the restrictions and meta-issues that have to be addressed with separate pages -- issues like size, number, how to chunk the information up. Typesetters even have terminology to talk about bits of text left alone



on separate pages: they speak of widows and orphans. Despite this, scrolls seem to have had little place in the gap between the Egyptians and today's scroll-bars on computer screens. Now and then they have cropped up; Jack Kerouac used to write his 'stream-of-consciousness' prose with a teletype roll of paper fed into the back of his typewriter, meaning that his stream-of-consciousness would never have to be broken with worries about page breaks or scrabbling for new sheets of paper.

A counter example are those awful fax machines that work with a big roll of thermal paper instead of separate sheets. They are cheap and useful and fine for single page faxes, but when you have received your thirtieth multipage contract you realize that your project archive is starting to resemble a pharaoh's tomb, with shelves full of rolls that have to be unrolled for 5 minutes to see what they are about! However, you never find yourself in the situation of losing a page from the middle of a vital fax.

The shift away from physical information carriers to the digital world has meant new information structures. Vannevar Bush was the first to describe the idea in 1945. The simplest of these novel ideas is the loop, unencumbered by having things in piles with a beginning and an end -- items can just be dealt with in a virtual circle. However, the idea of loops is not just something that came about with the computer. There are several bits of good, solid hardware where the loop is the basis of organisation.

Remember the "View Master"? That 3D scene viewer shaped a bit like flat binoculars that was around in the 1970's? They took a disk of small slide images, in stereo pairs, arranged in a circle so that once you had clicked your way around the collection you ended up back at the beginning again.

The early days of moving pictures and animation had similar ideas. The Zoetrope was a tall cylinder with slits in it and a sequence of pictures that would string

together as a short animation when it was spun (explaining it in full is not appropriate here). The key thing is, that because the pictures were on the inside of the cylinder they played and repeated as a loop. Thus the most effective animation sequences were those where the first picture was the same as the last, and the animation seemed to

be a repetitive motion (it's a similar story with animated GIF images on the web today).

In terms of classic information organization, we have the trusty Rolodex. This is basically a collection of index cards mounted in a circle on a central axis to look like an Elizabethan neck ruff. Spin the handle on the axle and you can whiz effortlessly through the cards from beginning to end and round again.

Finally, there is that solid work-horse of countless lecture theatres: the Kodak Carousel slide projector. This has a circular slide holder so that when it is full of slides the collection can be looped through endlessly if need be. A brilliant piece of information organization, the only problem with it is working out which way is forward in the collection of slides, and which way up to put the slides and which way around they go and... but that's another story.

SIGCHI at a Glance

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SIGCHI Bulletin is published by ACM, the Association for Computing Machinery, as a supplement to *interactions*.

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Printed in the USA

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Perhaps the most important concept from cognetics is the locus of attention. Whatever occupies our locus of attention is whatever we are paying attention to at any given moment in time. Often, our locus of attention is beyond our control. For instance, Raskin mentions the buzzing of fluorescent lights and suddenly it is noticed because his stating it has brought the sound to the locus of attention. The sound has been there all along, but until he mentioned it, it went unnoticed, outside the locus of attention.

The more a person is absorbed with the locus of his attention, the less likely he is to notice distractions. Absorption increases with stress and the importance of the task. Raskin concludes: "if the computer behaves unexpectedly while you are using an interface, you become less likely to see hints, help messages, or other user aids as you become increasingly agitated about the problem" (p. 27).

Having established a cognetics vocabulary, Raskin uses the next chapter to define some tools for describing interfaces, including a vocabulary and a notation for describing keyboard entry. He defines a series of terms to describe the complexity of interactions between human and computer. Raskin refers to the layers of complexity of an interface as modes. To understand modes, the reader must first understand gestures, which Raskin defines as "a sequence of human actions completed automatically once set in motion" (p. 37). Typing a word or clicking on an icon are gestures. When the result of a gesture is consistent, the interface is in a particular mode. Hitting Control-S means "save my work." If at any point that gesture has a different reaction, the computer or application has entered a different mode. Since the user's locus of attention is on his task, and not on the mode of the computer or application, there probability of making a mistake is greater when a computer or application has modes.

On the foundation of modes, Raskin propounds the design virtue of monotony, where one gesture leads to one and only one reaction and vice versa. Thus, in a monotonous interface the only way to save work is to hit Control-S and hitting Control-S will always save work, regardless of the program currently active.

In Chapter 4, "Quantification," Raskin adds to our vocabulary a means for measuring interfaces. Most of the chapter is dedicated to the GOMS (goals, objects, methods, and selection) model. At its most basic level, GOMS captures gestures and applies a set of rules to estimate the amount of time required to complete it. Raskin asks the reader to design an interface based on a simple set of requirements and then evaluates the possibilities with GOMS.

Having established a vocabulary in the first half of the book, Raskin uses the second half to address many common interface concerns in light of his framework. Raskin believes that all interface issues can be boiled down to an essential set of actions, which he calls "unification." All operations should be based on these actions. He catalogues these operations as follows:

- Indicating
- Selecting
- Activating
- Modifying (which encompasses Generating, Deleting, Moving, Transforming, or Copying)

Once defined, the principles of unification allow Raskin to address many common interface problems: filenames, cut-and-paste, searching, various text operations, scrolling, logging in, and navigation, among others. Raskin's goal seems to be to offer alternatives to the existing paradigm. Long-time computer users, even ones who find the current Windows, Icons, Menus, Pointer interface approach irritating, will find Raskin's alternatives unconventional and perhaps even unusable. Eliminating filenames and

directory structures, abolishing drag-and-drop text, and introducing new command keys seems unwieldy to those who have become well entrenched in the current way of thinking. To designers who have become familiar with a certain design language, Raskin's approach may also be unsatisfying.

Raskin explores, for example, the "intuitive" user interface. Interfaces cannot be intuitive – that is, usable without any prior exposure – because every interface requires a little bit of learning. In the early days of the mouse, for example, users could not discern what to do with it in order to interact with the elements on the screen. Once demonstrated, however, the mouse was easy to use. "That's fast and easy," says Raskin, "but it is neither intuitive nor natural. No artifact is" (p. 151). Familiarity, instead, is the virtue for designers to pursue.

Although Raskin's arguments are sound, particularly in light of the framework he establishes in the book's first four chapters, he builds his case poorly. Rather than spread out the new interface, giving the reader an overview of the ideal design and then focusing on particular tasks or functions, Raskin identifies a laundry list of concerns. Because the items in this list seem disconnected, the reader does not get a complete picture of the concept behind the interface. Had Raskin built his argument better, the call to action – "let's rethink the fundamentals of interface design" – would not have been lost in the haphazard collection of design recommendations.

Raskin has some important, if not sparse, advice for designers as they explore these new concepts. To improve an interface, says Raskin, means making it different. A designer cannot simply take something that is bad and make it better within the same paradigm. He says, "if it is to be superior, it must be different" (p. 151). He also states that we are our own worst enemies when it comes to designing new interfaces. The difficulty "in maintaining the quality of these interfaces [is] our old design habits" (p. 168). Perhaps ironically, these injunctions mean that new interfaces will never have the virtue of familiarity.

Books about interface design range from the more pragmatic list of design dos and don'ts to the more philosophical call to action, like Norman's "The Invisible Computer." "The Humane Interface" leans more toward the latter, but may lose its audience if read strictly in these terms. Web designers might throw up their hands: making Web sites humane is a lost cause if you do not have control over the underlying technology. Designers of mobile applications may wonder at the book's utility with its emphasis on text processing tasks. Designers of all types will grow weary of Raskin's continuous self-praise of the Canon Cat, a desktop computer he helped design in the 1980s.

"The Humane Interface," however, is two tools in one: a new vocabulary for considering user interface issues and a call to action for rethinking existing interface models. Although Raskin did not impress me with his solutions to common design problems, his tools for critiquing interfaces are nonetheless useful. Cognetics, monotony, and interface efficiency offer designers a useful language for talking about their design ideas, even within the confines of technology platforms beyond their control. While the author limits his critique to existing computer paradigms, emerging technologies will not necessarily rely on a keyboard, display, and graphical pointer, yet they must still be designed within the constraints of human cognition.