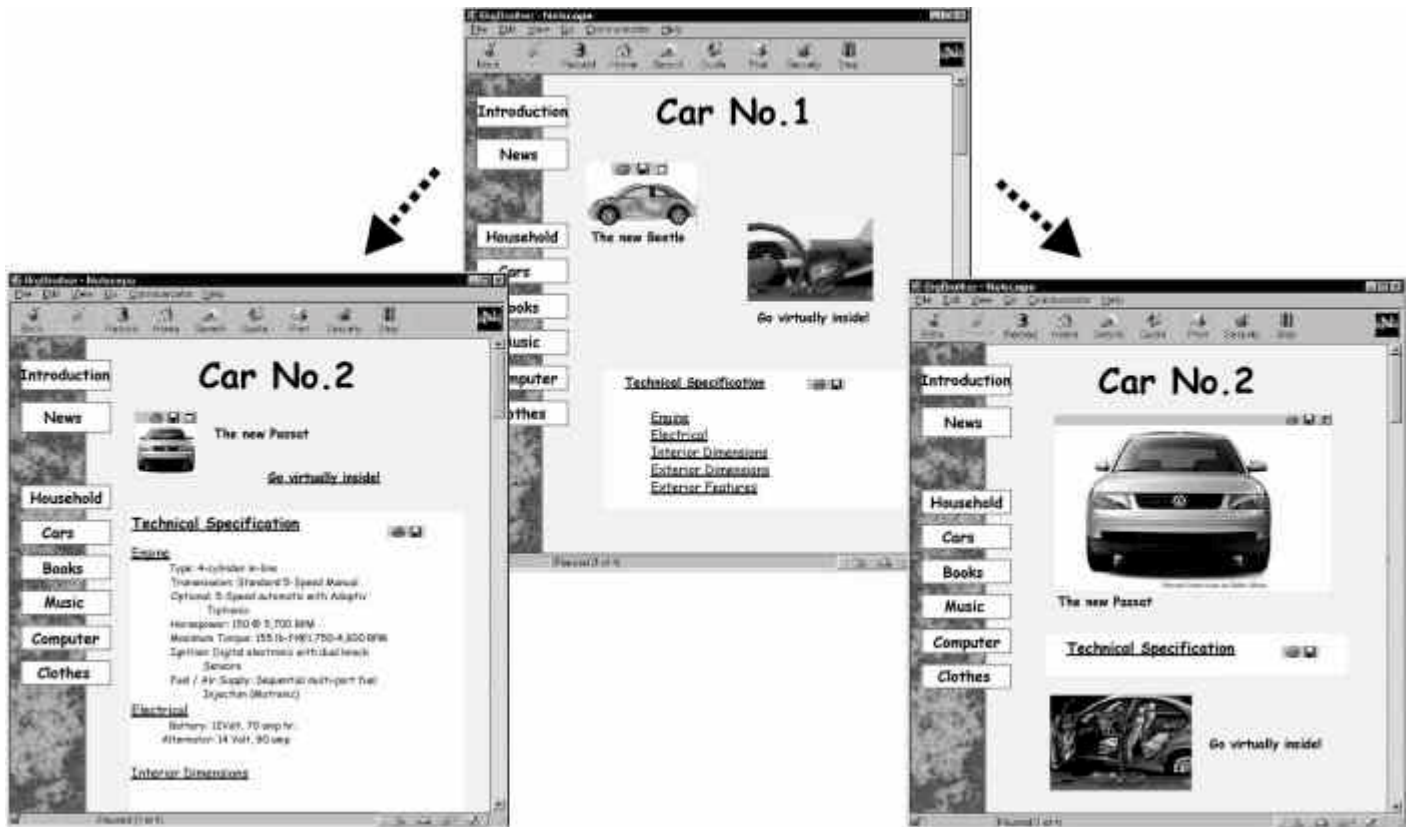# Inter*faces*

No. 40 Spring 1999

Computers and Fun

•

The Active Web

•

CSCW North

•

INTERACT *then and now*

contents

From the Chair

Leisure - the next frontier

One of our current research interests here at York University is leisure use of information and communication technologies (see also my account of the "Computers and Fun" meeting elsewhere in this issue. When I tell people this I have been getting some very strange reactions. It seems that "leisure" is not a respectable word. Commonly people snigger or pull a face. HCI researchers have spent so many years now studying work that they seem to have forgotten that there is anything else.

Leisure, to me, means recreation, re-creating myself by doing things that I am not being paid to do. It is a mystery to me why so many people should believe that doing something because one is paid to is somehow more valuable that doing something simply for the satisfaction one gets from the activity itself. Perhaps these people have no leisure time. Perhaps it has to do with the rather poor value we get from much of our leisure time – I am referring of course to TV.

TV is the main electronic source of entertainment for most adults. It doesn't take much effort to obtain this entertainment, but then neither is the return very high. HCI is particularly well placed to invent new forms of electronic entertainment that are truly recreational. We understand how people use computers and communication media and we have methods for finding out what people want to do with these technologies. Nevertheless, because of our previous fixation with work, there is a lot to learn. Usability is the word we use to describe the qualities that induce good experiences with software designed to support work. What qualities induce a good experiences with software for leisure? How do we measure those qualities? How do we predict what will produce them? This really is a new frontier as none of the other disciplines we normally steal our ideas from (Computer Science, Psychology, Linguistics and Sociology) have much to say about leisure either. New alliances are required, for example Art History or Literature. There is lots to do, but it has to be fun.

Enjoy yourselves,

Your chairman.

Andrew Monk is Chair of the British HCI Group and Reader in Psychology at the University of York.

Editorial

Welcome to the 40th issue of Inter*faces* – I hope you like our new look, which incorporates the winning logo from our recent competition. Congratulations to designer B.J. Bennett who is profiled alongside.

With preparations for Interact'99 in Glasgow well underway Brian Shackel looks back over the 15 years since the first Interact conference and considers how the focus of HCI has changed during that time. One notable development has been the World Wide Web and, following on from Alan Dix's popular Active Web articles, we have details of the Active Web day conference held recently in Stafford, as well as abstracts from the Computers and Fun workshop at York and the revival of CSCW North. These day meetings are representative of the regular events around the country that are supported by the British HCI Group. Watch out particularly for the special week of events, Users First, being held in April. Full details on page 22 of this issue.

Janet Finlay

About the Designer

B.J. Bennett studied Industrial Design in The National College of Art and Design (NCAD) and The University of Limerick (UL), Ireland. Graduating in 1990 he commenced working in Design Partners, one of Ireland's leading Industrial Design consultancies. Throughout his five years there, he worked on many successful projects for clients, ranging from Terraillion/Hanson and Flair International to Logitech and Apple, designing products ranging from Computer Mice and Coffee Machines to Trauma Care Hospital Beds and Bathroom Weighing Scales!

Having been awarded a Masters distinction in Computing and Design from the University of Ulster in 1996, he joined Singularity Limited in Derry (www.singularity.co.uk). Singularity is a Software Product Engineering company specialising in enterprise NT products for the financial industry. Over the last two years he has developed and managed a HCI Design team delivering UI solutions to many projects. B.J. has been involved in the HCI community for two years now and is looking forward to many more years of involvement.

The web pages on the front cover are an example of individualised product presentation in the TELLIM system [see page 18].
© Tanja Jörding and Stefan Michel

RIGHT TO REPLY

Make Inter*faces* interactive! We invite you to have your say in response to issues raised in Inter*faces* or to comment on any aspect of HCI that interests you. Submissions should be short and concise (500 words or less) and, where appropriate, should clearly indicate the article being responded to. Please send all contributions to the Editor.

> **With thanks to:**
> commissioning editor Alistair Kilgour. Inter*faces* is looking for additional commissioning editors. Please contact the editor for details.
> To receive your own copy of Inter*faces*, join the British HCI Group by filling in the form on page 23 and sending it to the address given.

NEXT ISSUE

Inter*faces* welcomes submissions on any HCI-related topic, including articles, opinion pieces, book reviews and conference reports. The deadline is **April 18th** – we look forward to hearing from you.

Deadline for issue 41 is **April 18th 1999**. Deadline for issue 42 is **June 30th 1999**. Electronic versions are preferred: RTF, plain text or MS Word (5/6), via electronic mail or FTP (mail fiona@hiraeth.com for FTP address) or on Mac, PC disks; but copy will be accepted on paper or fax.

Send to: Inter*faces*, c/o Janet Finlay, School of Computing and Mathematics, University of Huddersfield, Queensgate, Huddersfield HD1 3DH
Tel: +44 (0)1484 472913; Fax: +44 (0)1484 421106; Email: j.e.finlay@hud.ac.uk

and **copy email submissions** to Fiona Dix, Inter*faces* production editor; email: fiona@hiraeth.com

Computers and Fun
A one-day meeting, York, 30 November, 1998
Andrew Monk

I have been involved in HCI research for over ten years. During that time I have thought long and hard about how communication and information technology can be used to support work in one way or another. We have any number of ways of describing work, methods for designing for work and ways of testing products to see if they really support work. But there is more to life than work.

The average household spends 25% of its income on leisure and media. Entertainment is a major industry employing thousands of people. What has HCI to say about fun? The answer is – very little. This is important because there is a new challenge on the horizon. The sophisticated communication and computing equipment now routinely found in the office will soon be accessible to a mass market of home users. These new home users will not be satisfied with ease-of-use and ease-of-learning. Unlike the office worker who is paid to work with technology these people will have to pay for the privilege. Products in this new information age will have to be attractive and fun.

The eight papers presented in this one-day meeting all have something to say about how HCI can re-orient itself to cope with this coming revolution. Mäkelä et al. described how children aged between 8 and 12 used two digital toys: the Nintendo Gameboy Camera and the Philips in2it. Their main conclusion is summarised in their title "Fun is in doing it together". Prabhu et al. reported some experiences with similar conclusions drawn from the observation of people using Kodak Cyber Artist kiosks. They also made some useful comparisons between the iterative testing techniques needed for recreational as opposed to work products.

Johnson has been applying Barnard's ICS cognitive model to reason about fun and enjoyment, coming to some fascinating conclusions about posture. Petrie and Francis described the results of a statistical analysis of the relationship between playfulness, persistence and the use of computers. Springel described the Virtual Theatre immersive drama project at Cambridge based around role-playing games. Rogers et al. described another interactive drama project, this time at Plymouth.

Wright et al.'s contribution was a careful experimental study of the effects of animation in instructive multimedia presentations. While these can increase fun and lessen anxiety they may also reduce memory for the content. Höök et al. described an animation that could be used to enhance browsing tools using irony and humour.

Short abstracts of these papers are printed here. All the authors have been invited to contribute a full paper to a special issue of the journal *Personal Technologies* to appear later this year. Perhaps you have an article that might also be suitable for the special issue. If so please contact me at the address given on the back page of this magazine.

Fun is in doing it together

Anu Mäkelä, Pia Kurimo, Katja Battarbee
Helsinki University of Technology
P.O. Box 9555, FIN-02015 HUT
ahmakela@cc.hut.fi

Introduction

This paper describes some of the field trial results from user research conducted at Helsinki University of Technology for the Esprit LTR project Maypole. The aim was to find out what the users do in their free time with their friends. The users were children between ages 8 and 12.

The goal of Maypole is to develop new and innovative user interfaces that support sharing activities in families and local communities. The other consortium partners are Nokia, IDEO, University of Vienna, Netherlands Design Institute and Meru research.

To gain data for design decisions about users' preferences, in2it devices and Nintendo Game Boy Cameras were given to children for trial use. in2it is a personal communicator for children developed by Philips Electronics. The in2it has a stylus and a touch screen and it can create messages, tunes and "passports" and send them via infrared. It can also match people's biorhythms and predict the love, think and physical aspects for a given day.

Nintendo Game Boy Camera takes pictures, and allows them to be edited with, e.g., frames, text, sounds and hyperlinks and a number of filters. There are also three games. The pictures can be printed with the Printer onto stickers.

Field trials

in2it devices were given to five siblings and one of their friends between ages 5 and 12 for almost one week to use in their own environment. After that a focus group session with the testers was held. The children were asked about in2it and their free-time activities. The focus was on the children's social activities, and on their experiences and opinions about in2it. The results will be described in the paper.

The Game Boy Cameras were given to three girls aged 9 and four boys aged between 8 and 13. Both girls and boys attended the focus group held after the field trial. The children showed the pictures they had taken, and what they had liked about the pictures, the editing and the device, and where they had used it. They were also

asked to design their perfect device. The results will be described in the paper.

Conclusions

The users liked using these devices together with their friends, classmates and family, the fun was in the group activity that focused on using these devices.

The field trial results described in the paper are consistent with the idea of a participatory design and research method called Reciprocal Evolution. The method suggests that use is design, that users tend to start using technology in a way it was not designed for, and observing existing technologies can give directions and insights for new technologies. This is perhaps even more valid in the case of leisure time than in work tasks, where the organizational framework supports social networking. The fun in in2its and Game Boy Cameras was in using them together with friends.

Fun User Interface (FUI): does user-centred design work in entertainment imaging?

Girish Prabhu (prabhu@kodak.com), Jack Yu
(yu@image.kodak.com)
Human Factors Lab
and
Entertainment Markets Team
Systems Concept Center
Eastman Kodak Company
Rochester, NY - 14650

The Systems Concept Center (SCC) is a multi-disciplinary team dedicated to generating growth through identifying and demonstrating new value propositions, with a "technology neutral" systems perspective in partnership with the rest of the Kodak technical and business communities. Entertainment markets are the largest and fastest growing markets in the world, and account for more U.S. exports than any other industry. The Entertainment Markets team within the Systems Concept Center builds on the natural affinity of imaging and entertainment; looking at images as entertainment and image making/manipulation as marketable "fun" services. The primary focus of the entertainment team is the development of new concepts which provide fun and entertaining ways for people to interact with images. Our work is comprised of two parts:

1. The identification of internal and external partners (such as NBA, TBS/Atlanta Braves, Universal Studios, Sega, and Paramount/VIACOM) and customers who can provide access to valuable content and/or retail channels.

2. The development of new solutions which leverage this image content.

The main theme behind entertainment concepts is to create **Kodak Entertainment Moments,** a truly "fun multi-sensory, multimedia experience" and provide users with a take-away that will allow them to be reminded of and share the experience after it is over. The opportunity targets for this team are location-based entertainment (LBE), travel and tourism, sports, motion picture/performing arts, and cultural/educational institutes. The team of talented business researchers, software engineers, graphic and interaction designers, and human factors engineers works together to build new concepts using user-centred design principles. The usual steps included in the process are:

(a) work with partners within market situations to identify new customer wants or needs

(b) define Kodak's opportunity in satisfying this need

(c) identify product concepts that meet the need

(d) develop the process or solution needed to produce such a product

(e) prototype and test the solution internally and externally at different venues

(f) refine using iterative design, and

(g) help to commercialize, if successful.

The team has collaborated with Kodak Imagination Works, which is part of Kodak's Entertainment Imaging business unit, to explore target entertainment markets, early concepting of solutions, and market evaluations.

This presentation will discuss the user-centred design methodology from early concept development to collecting voice-of-customer and voice-of-end-consumer on two recent projects – Cyber Artist and PSILY.

"Cyber Artist" is one of Kodak's explorations into the addition of entertainment venues within movie theatre lobbies. The product consists of a camera, computer screen, software and printer. An individual or small group sits in front of a screen, poses, and sees a drawing being sketched and coloured by a "magic drawing pencil". While watching the drawing being created on the screen, a printer is simultaneously making a coloured caricature print. Several types of backgrounds can be initially selected by the consumer. A large, separate, monitor allows onlookers to view both the posing and the drawing of the portrait. The concept not only entertains the participant but also engages onlookers to provide a kind of community experience.

PSILY ("P.S. I Love You") is a personalized audio/portrait kiosk designed in collaboration with PSILY, California. This kiosk enables customers to communicate their feeling for their loved ones by creating a unique gift of personalized music. The concept allowed customers to create a Mother's Day song on a CD or cassette tape personalized with information such as mother's name, eye colour, location, and gift giver's name. The PSILY kiosk concept combined PSILY's product with on-site customer image and personal voice capture.

Using cognitive models to transfer the strengths of computer games into human computer interfaces

Chris Johnson
Department of Computing Science,
University of Glasgow, Glasgow G12 8QQ.
Fax: 0141 330 4913, Telephone: 0141 330 6053,
Email: johnson@dcs.gla.ac.uk
http://www.dcs.gla.ac.uk/~johnson

This paper extends techniques from affective psychology to show how cognitive models can be used to represent and reason about interaction with computer games. It is argued that this modelling activity provides insights into the motivational appeal that often distinguishes computer games from other forms of human computer interaction. The long-term aim behind this research is to use our improved understanding of interaction with computer games to inform the subsequent development of more general classes of interactive

systems. Barnard's Interacting Cognitive Subsystems (ICS) is used throughout this paper. This decision is justified by the fact that ICS has already been applied to analyze the negative emotions surrounding clinical depression. This previous work provides a useful starting point for our investigation of the more positive emotions evoked during interaction with computer games. A further justification is that ICS has also been successfully used to represent and reason about the design of human computer interfaces.

Keywords: computer games; user modelling; fun; human computer interaction.

Playfulness, persistence and computer use: a study of individual differences

Helen Petrie and Julia Francis
Psychology Department
University of Hertfordshire
Email: h.l.petrie@herts.ac.uk, jufran@aol.com

During the 1980s there was a considerable body of literature investigating anxiety or fear about computers (sometimes referred to as "computerphobia"). Rosen and Maguire (1990), in a meta-analysis of 81 studies, found that approximately 25% of all people feel less than completely comfortable with computers. Numerous instruments were also developed to measure computer anxiety, although none has become the standard measure. The relationship between computer anxiety and individual variables such as age, education, sex and various personality characteristics was explored. At the other end of the spectrum, research also addressed individual differences which might lead to computer "addiction" or dependency (Shotton, 1989). Perhaps because of this emphasis on the negative aspects of attitudes towards and use of computers, little research has addressed the more positive aspects of this domain. What kinds of individuals enjoy using computers, find them fruitful in their work or leisure and are "good" with computers? Some research has suggested that having a "playful" attitude to computers is very beneficial (Starbuck and Webster, 1991): regarding the computer as an artefact with which to play, a game, or a puzzle or problem to be solved, in either leisure or work contexts. Our own observations suggest that another relevant aspect of attitudes towards and use of computers is a sense of persistence. Current personal computer systems, whether PCs or Apples, often do not do exactly what the user wants or expects the first time a task is attempted. However, individuals who seem to enjoy using computers most and are the most proficient at using them, are those who persist in trying to achieve a particular task, exploring different ways the computer might allow them to achieve it, until they find a solution.

To investigate the relationship between the two variables of playfulness and persistence (which may in fact be interrelated) and attitudes towards computers, an exploratory study using paper and pencil measures of the variables of interest was conducted. This study is being followed up with a further study in which actual behaviour while using computers is observed; this will be used to supplement and validate the paper and pencil measures. 167 participants (university students and employees from a number of local firms) completed the following scales: the Computer Playfulness Scale (Webster and Martocchio, 1992); the Computer Attitudes Scale (CAS) (Nickell and Pinto, 1986); the Computer Anxiety Rating Scale (CARS) (Heinssen, Glass and Knight,

1987); the Computer Self-Efficacy Scale (CSE) (Murphy, Coover and Owen, 1989); the Locus of Control Scale, used to measure internal–external locus of control; the Group Embedded Figures Test, used to measure field independence–dependence; the Adjective Check List (ACL), a general personality inventory, used particularly to assess participants' perception of their creativity; the Raven's Advanced Matrices test of general ability; the Persistence Inventory (a 12 item Likert scale measure developed by the authors); and a questionnaire to obtain demographic information and data about use of computers.

A multivariate linear regression analysis revealed that participants' scores on the Computer Playfulness Scale could be strongly predicted from their scores on the three computer attitude and anxiety scales (the CSE, CARS and CAS), from a set of questions relating to persistence in computer use (but not the general Persistence Inventory), from one subscale of the ACL reflecting a need to seek novelty of experience and avoid routine and from the participants' sex. The implications of these and other findings will be discussed.

References

Heinssen, R. K. Jr., Glass, C. R. and Knight, L. A. (1987). Assessing computer anxiety: development and validation of the Computer Anxiety Rating Scale. *Computers in Human Behaviour*, **3**(1), 49–59.

Murphy, C. A., Coover, D. and Owen, S. V. (1989). Development and validation of the computer self-efficiency scale. *Educational and Psychological Measurement*, **49**, 893–899.

Nickell, G. S. and Pinto, J. N. (1986). The computer attitude scale. *Computers in Human Behaviour*, **2**, 301–306.

Rosen, L. D. and Maguire, P. (1990). Myths and realities of computerphobia: a meta-analysis. *Anxiety Research*, **3**, 175–191.

Shotton, M. (1989). *Computer addiction? A study of computer dependency*. London: Taylor and Francis.

Starbuck, W. H. and Webster, J. (1991). When is play productive? *Accounting, Management and Information Technology*, **1**(1), 71–90.

Webster, J. and Martocchio, J. J. (1992). Microcomputer playfulness: development of a measure with workplace implications. *MIS Quarterly*, **16**, 201–226.

Introducing the "Virtual Theatre" Immersive Drama project

Sharon Springel
Cambridge University Centre for Communications Systems Research
Springel@ccsr.cam.ac.uk

Cambridge University has recently launched a new Centre for Communications Systems Research (CCSR), aimed at establishing a world class R & D laboratory, focusing on far-reaching explorations of future media and communications technologies. This autumn, we are initiating a cross-disciplinary research project which is built around the concept of developing a new media form, one based on first-person, direct participation within improvised drama.

The technologies needed to create this new media experience are fast becoming available. Developments in such areas as telepresence, real-time computer imaging and advanced network capabilities are all progressing rapidly. What has traditionally been lacking is a clear overall vision of how all of this diverse technological momentum might be successfully harnessed by the creative community itself, in order to achieve the true paradigm breakthrough that "convergence" has been anticipating for some time now. We intend to exploit these technological developments to devise new systems that will directly empower individuals, allowing

them to make use of their own innate creativity by casting them in active roles within unique dramatic works.

Through such a system, everything from drama through education could potentially be transformed.

This project is founded upon the vision of a future "many to many" media landscape, characterised by real-time generation of interactive experiences, experiences that the end users themselves have as much of a hand in shaping as do professional production companies. As with the early days of the moving image industry, a new entertainment form, the computer game, is already being explored along the fringes of mainstream culture, in the video games arcades and through millions of PCs and domestic games consoles. The only area of our modern media society that has grown faster or bigger is of course the Internet itself – also fundamentally characterised by its ability to directly empower the end user.

Within these new forms there is one overriding common denominator – it is not about watching, it is about doing.

Our concept for this new form of media experience is based upon three fundamental principles:

1. Real Time 3D Engines and other forms of dynamic content generation are potentially as significant a breakthrough as any that has come before, and consequently, could eventually be hailed as "The sprocket holes of the 21st century".
2. The increasing availability of fast, wide and multi-directional networks leads to real individual empowerment, and, consequently, is giving rise to the ultimate media paradigm shift – "Users as creators of content".
3. Anonymity, which is widely recognised as being "The wine of the Internet", is the social lubricant that awakens both the communicative and the creative potential. This gives rise to what might be called "The Karaoke factor" – the potential within all of us to relax into the fun of the moment, to enter into a state of "social play" when presented with the right "safe" context.

These factors, when tied together with our fundamental affinity for storytelling and drama, an affinity that goes to the very heart of our psychological makeup, present a very compelling combination, one that we feel holds the key to unlocking the full potential of future media experiences.

As well as seeking to advance a new concept of what an entertainment or educational experience can be, we expect that this Immersive Drama project will also lead to the development of a whole new generation of technology. Technologies that will allow real voices, gestures, emotions and spontaneous actions to become the primary means of interacting with computers and telecommunications networks. And, more importantly, of projecting one's actions through such networks, to others around the world.

User engagement and interactive drama

Tom Rogers, Simon Turley, Peter Jagodinski, Mike Phillips and Dan Livingstone
University of Plymouth
peterj@soc.plym.ac.uk

Is drama "fun"? The question arose during a recent visit to the cinema to see Steven Spielberg's "Saving Private Ryan". Some unimaginably harrowing and disturbing scenes of mutilation and human despair unfolded, far larger than life, before the audience. Was there a rush for the exits? On the contrary, most people could be seen contentedly munching popcorn. Yes, if fun is something you have with popcorn, then drama is fun. The essential purpose of drama, whether it is theatre, film or television, is to evoke subjective experience in its audience. The advent of interactive digital television opens up many new possibilities for the structure and presentation of drama and the way in which people may engage with it. However, the design of interactive, computer-based environments requires theoretical and practical bases which are largely new to the dramatic arts. This paper describes research which is exploring the convergence of ideas and design models from a range of traditional sources including HCI, psychology, the performing arts and media production for this new media form. It starts by re-evaluating two traditional dramatic paradigms. The first and most familiar of these is Stanislavsky's Realism, in which the aim of drama is for the audience to suspend its disbelief and to regard the play as reality. The second, Brecht's Objectivity, aims for the audience to witness theatre in a state of sentient objectivity, to think about the issues portrayed and to have their minds opened to new perspectives. It goes on to consider the possibilities which may be offered by Boal's Spect-actor paradigm in which members of the audience take part in the drama so that their involvement transcends catharsis and becomes wholly enacted in a process which Boal calls "dynamisation". Although existing technology cannot enable a faithful computer-based implementation of the spect-actor paradigm, the model may be approachable in various ways and thus provides a useful goal for designers. The realities of designing and producing interactive drama are illustrated with practical examples. Different ways in which the user can go more deeply into the drama, for example by sampling characters' thoughts and viewpoints, are shown and discussed not only from the perspective of drama production but also in terms of the new affordances which they bring to human interactions with computers. Finally, workshop delegates are invited to participate via a website in the evaluation of the design models which have been developed.

Animation, the fun factor and memory

Patricia Wright (1), Steve Belt (1) & Ann Lickorish (2)
(1) School of Psychology, Cardiff University, PO Box 901, Cardiff, CF1 3YG
(2) Cognition and Brain Sciences Unit, Cambridge, CB2 2EF
Email addresses: WrightP1@cardiff.ac.uk; BeltS@cardiff.ac.uk, Ann.Lickorish@mrc-cbu.cam.ac.uk

The addition of graphics to a text can do many things, including modifying the fun factor. This is most likely to be the case when the graphics are being used for emphasis and embellishment rather than explanation. Data from three series of studies involving graphics used for these purposes will be discussed. These investigations involved widely differing materials, tasks and content domains. The first study addressed the issue of whether graphics added enjoyment to reading, the second and third studies examined the effects of animating the graphics in online texts.

Graphics differ in style and in their spatial and semantic linking to the text. The effects of these factors were contrasted in the first study with texts from the domains of back pain and heart disease. People read the information in

counterbalanced orders and then completed rating scales assessing the effects of the graphics. Although most people preferred the texts with graphics to those without, i.e. the graphics made the text more enjoyable, the magnitude of the effects were greater for cartoon graphics in the heart disease text than for realistic line drawings in the back pain text. So this study shows that although graphics can enhance the fun factor, they do not necessarily do so.

The effects of animating cartoon graphics were explored using interactive texts dealing with rheumatoid arthritis, explaining both the nature of the illness and its treatment. The graphics sought to emphasise main points from the text by re-expressing these as the behaviour of a cartoon dragon living in the diseased joints. When silent depictions of the dragon were animated, this increased people's willingness to look at the graphics during the course of reading. Since the animation added no new information, this change in behaviour would seem to reflect the enjoyment people derived from watching the animations – i.e. the fun factor. An auditory commentary increased people's willingness to view both animated and non-animated graphics. (Does sound potentiate the fun?) Nevertheless, even when there was an auditory commentary people were more likely to view animated than static graphics.

The third series of experiments examined whether the effects of animation were specific to the locus of their integration with verbal text. Using several short interactive narratives describing British castles and villages, the effects of static and animated graphics were assessed by contrasting the performance of readers who viewed the graphics during reading or only before/after reading. When animated graphics were watched during reading, this increased the time spent reading the text itself but these people had poorer memory for the content than did those who viewed the animations before studying the text. These findings suggest that people may find viewing animated graphics to be fun, but having fun may not always be beneficial to other cognitive activities.

Acknowledgement

From task-based to fun-based design: evaluation of navigational tools

Kristina Höök, Per Persson, Marie Sjölinder
SICS, Box 1263, 164 29 Kista, Sweden
http://www.sics.se/humle/projects/persona/web/index.html
{kia, perp, marie}@sics.se

Navigation in information spaces is a cognitively demanding activity, which sometimes makes us feel frustrated or anxious. We get lost, we do not find what we wanted, we are exposed to technical problems where files are not found, we wander in circles, and we sometimes get so frustrated so that we give up. Furthermore, there are large individual differences (partly due to our spatial ability (Dahlbäck et al., 1996)) that point at huge differences in how well different groups of users are at navigating information spaces. It seems obvious that we need to find new approaches to design.

We are exploring a couple of ideas where we rely much more on inducing a sense of relaxed relationship and social aspects to the navigation in the information space. One such idea is…

AGNETA & FRIDA…

On the user's personal desktop are placed two animated females (mother and daughter), sitting in their living-room chairs, watching the browser (more or less like watching television). The behaviours of the characters are triggered by document content (text, imagery, sound files, error messages, browser malfunctions, etc.), user's activity (on-load, on-click, on-mouse-over) and a randomised set of behaviours popping up now and then by themselves (coughing, drinking coffee, getting coffee in the kitchen, going to the toilet, gossiping about neighbour, etc.). In addition, the user has the option to have a plotline running in parallel, intermingling with the others (in the demo a drama and a comedy).

In contrast to usual agents Agneta and Frida are not serious and polite guides that are part of the interface, but often distance themselves from computer culture in general and its male dominance in particular. Humour and irony are crucial elements here. Also AGNETA & FRIDA tries to bring together browsing and narrative experience into one mode.

We are currently designing a user study on the AGNETA & FRIDA system where we aim to explore some of the more "soft" features of navigation. Our study will not be fixed on how well users perform the tasks that they face in terms of time spent, number of errors made, or any of the "old" usability measures. In fact, in a system like AGNETA & FRIDA, more time spent might be a measure of success since it would mean that they find the space interesting enough to stay in. Even more important are perhaps long-term measurements of how often they return to AGNETA & FRIDA to hear new jokes. Therefore, we are going to study whether a system such as AGNETA & FRIDA:

- encourages exploration (as opposed to wayfinding (Benyon and Höök, 1997))

- creates a "delightful" experience, rather than making users anxious about getting lost. Here we are not only interested in whether they enjoy AGNETA & FRIDA but also if they are annoyed by them, or other emotional reactions to these characters

- creates "anthropomorphic" expectations, to what extent the users have expectations of "human like" behaviour from the characters and "human like" emotions within the characters; and if these expectations vary with different intensity in the appearance of the characters.

- creates a different perspective on what navigation is – a shift from navigation in a spatial space (as users perceive the web (Maglio and Matlock, 1998)) to experiencing a mixture of an interactive narrative and a hypermedia navigation (Murray, 1997).

The problem is how to measure these aspects, and whether measurements in some objective meaning are of any real use. Our current plan is to perform an evaluation of AGNETA & FRIDA where the users' facial expressions will be recorded on video and analysed in relation to the interaction with the computer and with the characters' actions on the screen. We will also analyse the users' language when
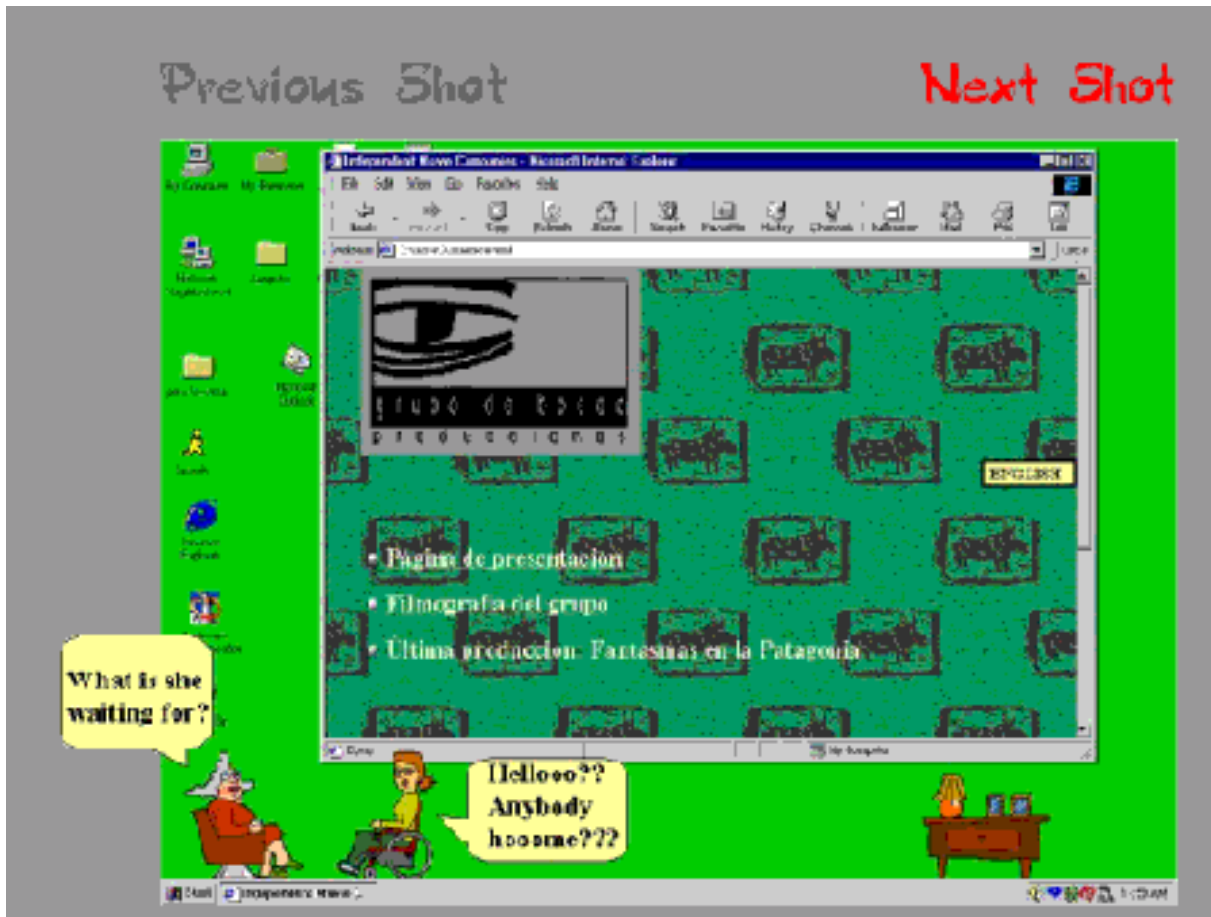
talking about or describing the system. The overall subjective impression of using the system will be captured in a questionnaire.

References

Benyon, D. & Höök, K. (1997). Navigation in Information Spaces: supporting the individual. Paper presented at *INTERACT '97*, Australia.

Dahlbäck, N., Höök, K. & Sjölinder, M. (1996). Spatial Cognition in the Mind and in the World – the Case of Hypermedia Navigation, *The Eighteenth Annual Meeting of the Cognitive Science Society*, University of California, San Diego.

Maglio P. & Matlock T. (1998). Metaphors We Surf the Web By. Paper presented at Workshop on PERSONALISED AND SOCIAL NAVIGATION IN INFORMATION SPACE, Stockholm

Murray, J. (1997). *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*, Cambridge: MIT Press.

Andrew Monk
Dept of Psychology
University of York
Heslington, York
YO1 5DD, UK
Tel: +44 1904 433148
Fax: +44 1904 433181
Email: A.Monk@psych.york.ac.uk

INTERACT – Then and Now

Brian Shackel (former Chairman IFIP TC.13)

Imagine a world without a Macintosh or Windows. Imagine hardly anyone able to reply to an email message even if you had the ability to send one. That was the world in 1982 when we started planning the first INTERACT conference.

Imagine how you would feel if deprived of your word-processor or spreadsheet. But the first microcomputer word-processors and Visicalc had only just become available on the Apple II and Commodore PET from 1980. The take-up was rapid but still most people did not have a machine of their own. But by 1983 the IBM PC with Lotus 123 was moving fast into the business world; then in 1983 the Apple Lisa closely followed by the Macintosh in 1984 began to show the world via schools and universities how useful computers could be if they had a usable interface.

It was an exciting world of rapid change in the fields of computing and information

given below (note the many similarities to but also differences from today).

Since 1984 the INTERACT series of international HCI conferences have been held at three-year intervals until 1993, since when they have been biennial. The Proceedings volume of each conference has been published by an international scientific publisher, always under a similar title to that above. The INTERACT series has become the flagship conference of IFIP TC.13 (International Federation for Information Processing Technical Committee on Human-Computer Interaction). It is hosted by an IFIP member country society, provides an excellent series of HCI presentations that help to heighten awareness of HCI in the host country, brings many eminent international HCI experts into the local region to share knowledge about state-of-the-art HCI research and practice, and supports and encourages the local HCI community.

1. Keynote Addresses
2. User Aspects
3. Hardware Interface
   Visual and Display Characteristics
   Workstations and Workplace Issues
   Input and Output – Some New Approaches
   Input Methods and Comparisons
   Speech Input and Output
4. Software Interface
   Dialogue Interaction
   Dialogue Interfaces
   Tools to Aid Interface Design and Programming
5. Cognitive Aspects
   Language Design and Comprehension
   Knowledge Based Techniques
   Modelling Users and User Interactions

6. Design and Implementation
   Design – Approaches and Methods
   Design – Guidelines
   Evaluation – Approaches and Methods
   Learning and Training
7. Wider Issues and Applications
   Aids for the Disabled
   Organisation and Social Issues
8. Two Theme Sessions with Application Emphasis
   Behavioural Issues in the System Development Cycle
   Usage Issues in Electronic Mail, Conferencing
    and Journal Systems

The field of HCI has developed and expanded enormously over the intervening 15 years – see for example the recent histories by Shackel 1997 & Myers 1998 – with annual conferences in the USA and Britain since 1985 and also in other countries. As a result the

technology. This was fuelled by large amounts of government funding via the Japanese 5th Generation, the European ESPRIT and the British Alvey programmes, all of which had a five-year timescale from 1983/4 and placed considerable emphasis on the 'man-machine interface'. Partly as a result, the INTERACT organising committee was overwhelmed with 282 synopses and had to ask for and review full papers. So the conference Proceedings volume (Human-Computer Interaction – INTERACT'84, Amsterdam North-Holland, ISBN 0-444-87773-8) contains the largest collection of research papers to that time and gives a good view of the current position and the range of topics being studied.

The contents were regrouped to present this comprehensive overview, as explained in the Preface, and for interest the main headings are

international meetings are no longer able to present a complete overview covering all the various aspects; however, by rigorous selection of papers it is still possible to give a comprehensive review of many of the major facets of HCI. Further, it is obvious from experience that more high quality papers are submitted to the fully refereed INTERACT conferences; also, authors benefit from disseminating their work to and getting feedback from a larger audience with a much higher proportion of the best international experts.

Moreover, TC.13 takes on a truly international role by sometimes moving INTERACT to countries that are not traditionally seen as being in the 'mainstream' of HCI (i.e. outside the UK and USA). This may sometimes cause problems for INTERACT in the short term, but in the long

term will be seen as an important contribution to the growth and health of HCI worldwide.

Therefore, I am most pleased that the 7th INTERACT returns to the UK as the guest of Scotland and the British HCI Group. There is every intention to make this in part an overview of the past and present; but more especially the aim is to highlight the trends and innovations which will shape HCI and to present a preview of the major issues and areas of HCI which need to be addressed at the start of the new millenium.

Here is the venue to come to hear and discuss how you will use computers in the first decade and how better to design them for such new uses. Do you wish to wear wearable computers? How should they be tailored to suit all types? Even the smallest useful 'palmtop' bulges my pockets, must I adopt a handbag at work and not only on holiday in Spain, Italy or Greece? Will we like all this telework, webwork and eventually never face-to-face any more? What are the new ergonomic and societal problems, far beyond the interfaces, of the new global systems? I very much look forward to learning what your world will be like, as I move to the backbenches of the international scene.

Myers, B. A., 1998. A Brief History of HCI Technology. *ACM SIGCHI Interactions*, **5**.2, 44–54. (bam@cs.cmu.edu)

Shackel, B. 1997. HCI Whence & Whither? *J. Amer. Soc. Info. Science*, **48**.11, 970–986. (b.shackel@lboro.ac.uk)

Year	Date	Location	Participants	Proceedings
1984	4–7 Sept	Imperial College, London, UK	568 from 20 countries	983 pp 152 papers – INTERACT'84
1987	1–4 Sept	Stuttgart University, Germany	560 from 23 countries	1138 pp 163 papers – INTERACT'87
1990	27–31 Aug	Cambridge University, UK	572 from 30 countries	1078 pp 153 papers – INTERACT'90

Hosted by the British Computer Society

1993	24–29 April	Amsterdam, The Netherlands	1580 from 32 countries	547 pp 62 +40 short – INTERCHI'93

NOTE: *This INTERACT conference was named INTERCHI'93 – because the Netherlands Society for Informatics and its Man–Machine Systems Group invited IFIP TC.13 and ACM SIGCHI to hold the INTERACT and CHI conferences together. The joint organisation gave a successful conference, which exceeded expectations in attendance.*

1995	25–29 June	Lillehammer, Norway,	220 from 29 countries	436 pp 75 papers – INTERACT'95

Hosted by the Norwegian Computer Society. This was the first of the biennial conferences.

1997	14–17 July	Sydney, Australia	366 from 22 countries	713 pp 77 +63 short – INTERACT'97

Hosted by the Australian Computer Society. It incorporated the annual Australian HCI conference (OZCHI'97), and the second Asia–Pacific Conference on HCI (APCHI'97).

1999	30 Aug–3 Sept	Edinburgh, UK		

Hosted by the British Computer Society HCI Special Interest Group. It incorporates the annual BCS–HCI conference.

The Invisible Computer:
Why Good Products Can Fail, the Personal Computer is So Complex and Information Appliances are the Solution

Donald A. Norman

Reviewed by Lynne Coventry, NCR

The Invisible Computer by Donald Norman is an excellent focusing tool for those of us who are usability professionals within product development organisations. For those readers who are not, it is an excellent awareness-raising exercise to the pressures facing those professionals within organisations. An accompanying book for readers would be *The Politics of Usability* by Lesley Trenner and Joanna Bawa. [Reviewed *Interfaces* 39, p26]

A word of warning: I must admit that I nearly did not write this review. It took me a month to get through the first chapter. It irritated me. The phonogram example was repeated a bit too much. I also got the impression this book was going to say the technologists get it wrong but marketing will get it right. This was the wrong impression and perhaps I need to improve my skim reading skills but it was not until page 44 that I realised that Norman did not assume that customers were users and maybe as an experienced usability professional I would get something out of reading this book.

Getting back to the book at hand, Norman argues that the PC tries to be too many things to too many people and as a result is not the most effective tool possible for many of the people, tasks and environments it is said to support. This reality also means that the usability experts involved in PC and similar developments cannot follow their own guidelines. The mantra "know thy user" can be chanted, but how do you know the millions of people, all over the world, from all walks of life, with different experiences, needs and desires? As usability people we take a small sample of users, which we hope is representative, and test a small subset of the functionality while the user carries out a small subset of the tasks the application is said to support. We go along with the myth that we can understand what is required, rather than taking the consumer-centred approach, which would be to design an appliance specifically for this group of people and match a specific task.

> **The Invisible Computer:**
> **Why Good Products Can Fail, the Personal Computer is So Complex and Information Appliances are the Solution**
> Donald A. Norman
> MIT Press, Cambridge, MA, 1998

Norman suggests that Information Appliances will be the solution. They will be simple, versatile and fun products designed for a specific function that can be joined together into a family (or is that a PC?). Is it really that simple? Can this be achieved? Who really knows, but it is an approach which is being actively explored by some research departments within companies such as NCR and Phillips, to name but two. Phillips presented their view of the future at SIGCHI '97 and presented many interesting ideas which illustrated potential information appliances derived from a 'consumer and lifestyle of the future' perspective. Then at last summer's Usability Professional Association Conference in Washington D.C. I heard the same – PC is bad, Information Appliances are good – story from Walt Mossberg, a technology columnist for the Wall Street Journal. (Maybe he had seen an advance copy.) The technology companies fall over themselves to get Walt to say something good about their product, because if he does the Wall Street Journal readers may buy it and that is a very lucrative market segment to get into. Walt presented an electronic book that was small (probably 6 by 10 inches) and light (about 2lbs) and could store up to 8 books. All you could do was read books on it. Some features were even better than the original, for example bookmarking, as you did not have to damage the book by turning down the corner or sticking something in the book. I thought about the fun of travelling with this and reading books (rather than playing with my daughter's Gameboy) and immediately I started to think of adding a pen and gesture system so that I could load work documents on to it and I could mark them up as I travelled to business meetings. Suddenly I was one of them – a marketeer or a technologist – I was allowing functionality to creep in, using the appliance for a function it was not intended for. Aargh I screamed (in my head of course – I was still at the keynote speech).

Norman has chapters looking at how businesses and product development teams do not currently follow a consumer-centred process, which also provides insight into what goes wrong in current development. He provides alternative models to support Information Appliances, again not in any great detail, but with enough ideas to get the reader thinking, and with interesting examples.

There are many obstacles to overcome to develop really useful and usable products, and Norman provides some examples of what these information appliances may be (interestingly the electronic book is not mentioned), business case ideas, and process issues for such an approach. He may not have got it right, he may not have all the answers to the questions his book raises, but to me it is a far more interesting path to follow than adding more functionality to an already conceptually flawed base. A thought-provoking read.

A Hard Day at the Office

Lon Barfield

Embarking on a large-scale writing project is always a real effort, before putting pen to paper there are so many things that seem to need tidying up and sorting out, you clean your desk, you go to the shop to get the right pen and pad, you make a good cup of coffee. Eventually, by the time that you are playing about with the telephone receiver to try and get the kinks out of the flex, you realise that all these activities are subtle distraction strategies to delay the actual start of the writing.

Nothing has changed now that the pen and paper have been replaced by the screen and keyboard of a computer. There is in fact even more that needs to be sorted out before writing the first sentence. Consider the amount of work necessary just to choose the correct background and window colours.

Recently I embarked on a large-scale writing project and wanted to get the document layout correct from the word go. This meant that before the first word could be written I had to apply all my energies to setting up good document templates to use while writing.

The widest selling commercial word-processing package comes along with a suite of standard templates, there are even three report styles for large writing projects: Contemporary, Elegant and Professional. The naming does seem to suggest that the Contemporary style is not professional and the Professional style is not elegant but many people are satisfied to use them. Indeed many people even end up using the standard headers and footers contained in them without realising it, since you can view the document without having them on the screen. I have actually seen faxes rolling out of the fax machine bearing the header; 'Film Watch Division Marketing Plan'.

Within these templates, paragraph styles follow a complex set of dependencies. If you want to change the font style of all headings you don't go through them applying the 'change font' command to them all, you simply change the font in the 'Heading Base' format from which all the headings are derived. Wonderful in theory, but in practice there are a few loose ends.

Consider the behaviour of the outline processor: that wonderful tool to help juggle the contents of a document without carrying out huge and terrifying cut and pastes. You can promote 'Body Text' to 'Heading 1', 'Heading 2', etc, but when you demote headings they don't revert to the style 'Body Text' but to the style 'Normal', thus any promoting of text has

to be done very cautiously since demoting it again also entails fiddling with the paragraph format afterwards.

In fact, being a software purist (a trait that I am desperately trying to lose as it costs me so much wasted time) I decide to define my entire set of paragraphs from scratch, exactly the way I wanted them.

My first hurdle is that when you start with a blank document you get five standard paragraph styles for free, what is worse is that these cannot be deleted, you are stuck with them no matter what you do. Worse still; if you call up the list of paragraph styles you find that there are not just five but hundreds of them, the whole set in fact. All built in and none of them can be deleted.

The only way then of setting up your own styles is to do so in amongst this pollution of impure existing paragraph styles. The answer is to define your own set and to let them live in symbiosis with the existing non-deletable styles. I could define styles whose names all began with AAA, partly to get them at the top of the list separate from the others and partly as a symbol of my deep frustration at the system. 'AAA Body Base', 'AAA Body Text', etc.

I began setting up a complex file with all these definitions and then quickly discovered that heading numbering is not a general attribute that you can hang on any paragraph style, only the official 'Heading 1' etc. can be numbered.

Finally I capitulated, it was either a question of rewriting the word processor from scratch or accepting the inevitable. I opened the built-in styles, chose the 'Film Watch Division Marketing Plan', the starting point for half the documents written on this planet and started hacking away at the existing paragraph styles on the long road to writing that elusive first sentence of my document.

Lon Barfield (lon@design.nl) is a usability consultant and lecturer with General Design Internet Solutions. He is the author of 'The User Interface, Concepts and Design' (Addison Wesley, ISBN 0-201-54441-5), and also writes the 'Real World' column for the SIGCHI bulletin. When he has sorted out the paragraph styles he is going to write another book.

Conference report: The Active Web

Alan Dix and Dave Clarke

On 20th January 1999 a British HCI Group day conference was held on "The Active Web".

The call for papers for this was very successful with a very large number of extended abstracts submitted. These were refereed by a panel of 25 referees, each paper having at least 4 reviews. In the end 12 papers were selected for the main speaker programme plus a number of posters and demos. However, the standard of the papers was extremely high and it was very difficult deciding which papers to leave out of the programme.

The final programme included presenters from five European countries. If we include co-authors, authors of posters and other submissions and referees, twelve countries and four continents were represented in total. Presenters and attendees included both academics and practitioners capturing that most exciting essence of web-related work: research and practice are closely related, it is a field that is constantly operating 'on the edge'.

student bursaries

aQtive limited sponsored several bursaries to help students attend the conference. These were awarded to four students based on short position statements about their current work and plans. They were awarded to Ann Light (University of Sussex), Thomas Tan (Middlesex University), Jacqueline Harris (Staffordshire University) and Soha Maad (University of Warwick).

speaker programme

Given the number of presentations in the day, it was a fast moving programme with vigorous discussion. Several speakers included live connections to remote (international) systems. (Amazingly) these all worked flawlessly, with the only technical problems being the more mundane issues of swopping monitor leads between jostling laptops and fits of temperament from PowerPoint ...

The speakers covered a wide range of application areas and web technologies. Several themes recurred during the talks, most notably the separation between semantic content and presentation. Also the issue of time and delays came up in several talks reminding us of the 'Time and the Web' conference we ran in 1997.

Note that the descriptions here are our own view of the talks and not the authors' own abstracts. We hope we haven't misrepresented them too much.

Adaptable hypermedia with web standards and tools

Lloyd Rutledge, Lynda Hardman, Jacco van Ossenbruggen and Dick Bulterman
CWI, Amsterdam

Much of the success of the web has been due to the use of existing de facto and de jure standards, such as GIF, JPEG, SGML and QuickTime; coupled with the rapid evolution and adoption of new standards, such as HTML, HTTP, CSS and XML (albeit often 'improved' – read 'broken' – by major web-browsers!). Lloyd described how the group at CWI are using a variety of international standards, including HyTime, DSSSL and SMIL, to define a Standard Reference Model for Intelligent Multimedia Presentation Systems (SRM-IMMPS). A key feature of this is the separation between the storage structure of multimedia and its presentation – a moot issue in HCI for many years, but one which is especially difficult for multimedia systems where layout and semantics are often interdependent. An environment, called Berlage, has been designed to assist the design of multimedia systems using the model.

The use of the model was demonstrated in an example system called *fiets* (Dutch for bicycle). Fiets is an information system about historical buildings along the Herengracht, one of Amsterdam's main canals. A key feature of this was the use of a space/time/link distinction in both the underlying semantics and the presentation. For example, buildings can be shown arranged by date (temporal semantics, spatial presentation), or be shown one by one with links to the next house along the canal (spatial semantics, link presentation).

Browsing video content

Peter Macer[1], Peter Thomas[2]
[1]Hewlett Packard Research Labs, UK; [2]University of the West of England

Image download time is a major problem on the web. This is especially bad when a user navigates a link, unsure of the content to be found at the end-point, only to wait several minutes for an image to download that then turns out to be irrelevant to the user's needs. Often web pages use a low-resolution thumbnail image to allow users to decide whether to download a larger, more memory-hungry image.

These problems are, of course, far more serious for video content.
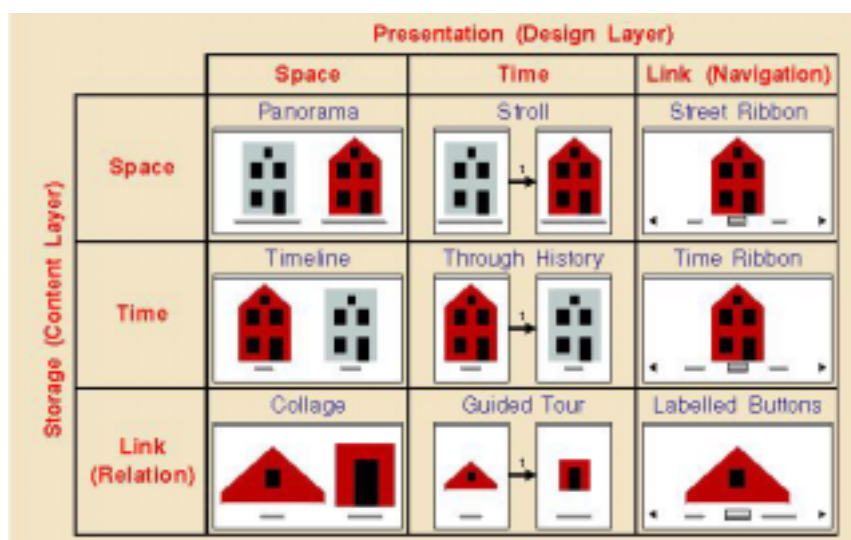
Fiets illustrated the distinction between the time, space and hyperlinks of storage and of presentation by defining 9 different mappings of the possible combinations of each.

Peter Thomas presented a system 'Rosetta' that he and Peter Macer have developed to address this problem. Rosetta uses a variety of image processing techniques to extract 'shots' automatically from a continuous video source and then to select 'typical' keyframes from each shot. In order to find the keyframes an average frame is first produced for each shot and then compared with each frame on the shot. A surprising and initially counter-intuitive result from their work was that a good 'typical' frame is one that is most different from the average, not closest as might be imagined. This is because the average tends to pick out the background features of the image and moving foreground figures would disappear if the closest to average were chosen.

As a test of their results, the results of applying Rosetta to a portion of 'Wallace and Gromit' was compared with the original storyboards for the film. The similarity was impressive.

Keyframes, once extracted, can then be used in a web-based interface to choose whether to download a video clip or to select a portion of the video to view.

Using visualisation to interpret search engine results

Ratvinder Grewal, Mike Jackson, Jon Wallis and Peter Burden
University of Wolverhampton

When using a web search engine, the pages are ranked using a 'relevance' measure, usually represented as a simple percentage calculated from the number of search words (or keywords) found in the page . With such a measure, if one were searching for 'lighting dimmer switches', the relevance of a page with references to only 'lighting switches' would be similar to one only mentioning 'dimmer switches'. Until visited, both appear equally relevant to a user, yet it is clear that the latter is really much more likely to be useful.

Ratvinder described experiments that have been carried out to compare two novel visualisations of the 'relevance' of web search engine results. These are designed to allow users to decide for themselves how relevant pages really are. One visualisation is based on a 3D polygonal-based pyramid where the sides of the pyramid represent each search term. The sides are coloured depending on the number of times the

particular search term was found on the page and a 'pendulum' hangs within the pyramid representing a standard overall 'relevance'. The alternative is a 2D circular representation where the circle is divided into equal segments, one for each term, and the segments are coloured from the centre depending on the number of relevant terms found.

The two representations are equivalent in that the circle is exactly what one would see if one looked 'up' inside the pyramid, but there is no equivalent of the pendulum in the 2D representation. So, if anything, the 3D visualisation had more information. However, the results of the experiment showed that users were better able to interpret the 2D representation. This supports other results where 3D representations, although appealing, are often harder to interpret because of effects of obscuring, perspective, etc. Our visual systems are tuned for a textured organic environment using rich semantic information to supplement lower level cues. It is perhaps not surprising that we have trouble when faced with more abstract 3D representations. So perhaps 2D representations, including those presented in this work, will be with us for some time yet!

A stable view of the hyperactive web

George Buchanan, Gil Marsden, Thomas Tan, Yin Leng Theng and Harold Thimbleby
Middlesex University

The 'team' presented portions of ongoing work at Middlesex on web design and maintenance tools (see Interfaces 38, p 8–10). Several sites of different kinds are managed using their toolsets, including the Friends of Benjamin Franklin House (a relatively small site) and the Royal Society of Arts (a large site with 500+ pages and over 20 content authors). Their current aim is not to replicate commercial web development tools, but to address niche areas. In particular they are addressing issues of quality, reliability and maintenance.

Two specific tools were presented. The first, Webtree, shows the pages resulting from a web search as an interactive outliner (shown overleaf). A normal search results in just a list of pages with a small description or abstract from each page. The user has to navigate to the page in order to see whether it is relevant. In Webtree the list of pages can be seen as the top level of an outliner. Each page can be individually expanded to show its first level headers, these can then be expanded in turn until the full content is revealed – all within a single scrolling outline window.

The second tool, Docman, supports the critiquing of web pages by human and automatic reviewers. Reviewers can make notes about specific pages and the system manages these for the page author. Automatic tools also scan the pages and add their critique and suggestions to Docman. The tool is aware that many pages are generated from database content and manages these also.

Docman screen shot (running in a standard web browser, which is not shown). The top frame is commentary, the bottom frame is the RSA site page being referred to.

Webtree screen shot (running in a standard web browser, which is not shown). Queries are entered in the left frame, the right frame shows search results within an interactive outliner.

Patterns and components: capturing the lasting amidst the changing

Hans-W Gellersen[1], Fernando Lyardet[2], Martin Gaedke[1], Daniel Schwabe[3] and Gustavo Rossi[2]

[1]TeCO, University of Karlsruhe, Germany; [2]LIFIA, Depto de Informática, UNLP, Argentina; [3]Depto de Informática, PUC-RIO, Brazil

Design patterns have become a hot topic in object-oriented programming and design. Whereas component-based reuse (including objects) allows parts of a system to be reused, design patterns allow the structure of a design (or piece of program) to be reused. The class structure in object-oriented languages can help to turn these patterns into code. Links between web pages, or even the generation of presentation from content, can be seen as a form of component-based reuse of material, suggesting that some form of design pattern would be useful here too.

Hans presented the work of a trans-continental collaborative project which has developed a method and markup language to support design patterns in web development. The method, called Object-Oriented Hypermedia Design Method (OOHDM), has a design notation in which navigational objects (such as nodes and links) can be related to conceptual entities (such as database objects). The design notation also allows design patterns to be expressed.

In order to translate this into actual web pages an XML-based language called Web Composition Markup Language (WCML) has been developed. It allows an inheritance-style development of web content, similar to that found in object-oriented programming languages.

A case study in designing a document-centric groupware application over the Internet

Paolo Ciancarini and Fabio Vitali
University of Bologna, Italy

In a rather self-referential manner, this paper took as an example the management of a conference! Fabio presented the PageSpace architecture. This is an agent-based architecture enabling workflow-style systems to be developed.

Humans are included in the architecture through special agents called roles, and special gateway agents allow interaction with the external environment, for example via CORBA. The agents also communicate using standard protocols such as HTTP or email.

PageSpace is built upon an underlying Linda-style tuple space called Jada (because it is a Java-Linda combination). Moving away from their parallel-processing beginnings, Linda tuple spaces are becoming popular in this sort of application, including Limbo (Lancaster University), and of course inspiring JavaSpaces.

PageSpace is a reference architecture. One specific software architecture developed from PageSpace is called MUDWeb. It uses the concepts of MUDs (rooms, avatars) to construct collaborative applications. The conference management system is then built on top of this, for example having a 'SubmittedPaper' room.

Finally, some of the web pages for the system need to be more active than standard mechanisms allow. Echoing previous talks, the team needed a greater separation between the display and the semantics. To support this they have developed 'displets', active documents that can render themselves using XML and Java.

## Impedance matching: enhancing temporal interactivity on the web

Devina Ramduny
Staffordshire University

The ubiquity and platform-independence of the web make it ideal for developing groupware applications. Yet it is inherently asymmetric: authors write and update pages, others see the changes when they next look at the page. However, close collaboration requires timely feedthrough – seeing the effects of other people's actions. The HTTP protocol provides little support for feedthrough and so some notification server is required either as part of HTTP or as a separate service.

In this paper Devina described issues surrounding the design of notification servers to provide an appropriate pace of feedthrough. As part of the conceptual investigation a specific separate notification service has been developed

called Getting to Know (GtK). GtK supports notification using three main functions: 'add interest' in a particular object, 'remove interest' and 'tell all' when events concerning an object are broadcast to all interested parties. As an exemplar, a simple real-time conferencing system has been developed using GtK. This allows a user to connect to several simultaneous conferences of which one is active – where the user's messages are sent.
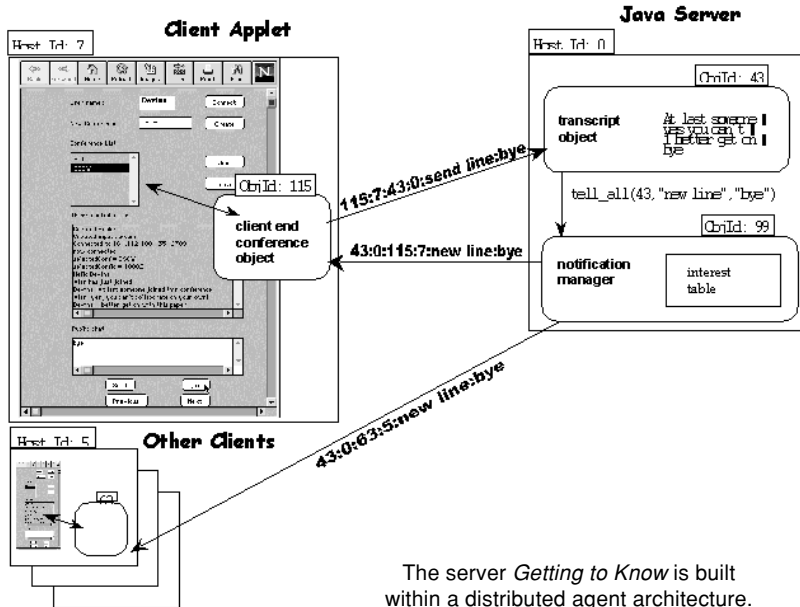
The server *Getting to Know* is built within a distributed agent architecture.

In this simple state all users will receive information at the same rate. However, it is clear that the active conference requires a higher pace of feedthrough than the other conferences. This is an example of the need for impedance matching – matching the pace of generation of events with the pace at which they are required. GtK supports this with a 'set frequency' function which tells the server how often to tell users about changes.

Communicating with avatars in virtual 3D worlds

Volker Thoma, Andrea Haf and Arno Hitzges
Fraunhofer Institut, Germany

UNIX 'talk' and MUDs are being replaced by various forms of real-time 2D and 3D virtual environments (yes, we know there are still UNIX users out there who use 'talk' or command line email for communication, but then for you 'vi' or 'ed' is the ultimate wordprocessor...). In the virtual environments the participants are represented by avatars, more or less lifelike images of themselves which move within the environment and allow them to meet and communicate with one another (often using a text window – 'talk' rises like a phoenix from the ashes). These also often allow the participants to make 'gestures' – command their avatar to wave, and so on.

As well as their social use, these virtual community environments have potential for virtual meetings, collaborative work and distance learning. Furthermore there are commercial possibilities in online shopping where the experience of 'shopping' may be as important as the things one is shopping for.

Volker described user studies comparing two popular 3D multi-user environments available through the web: Blaxxun's community and ActiveWorld's Circle of Fire Studios Inc.

One major result was that the subjects found the text communication window confusing. They preferred word bubbles within the VRML window (another nail in the coffin for 'talk'?). They also wanted to simply click on an avatar and communicate directly, whereas the systems required an action external to the window. In general, the experiments showed that users disliked the movement between the virtual world and the 'flat' interface surrounding it. Paradoxically, they also found it confusing when they couldn't see their own avatar, preferring an 'over the shoulder' view. Whether this would be true of fully immersive VR rather than desktop VR isn't clear. Certainly this work shows that common designs are far from easy to use and that more empirical work of this kind is required to establish principled and informed virtual design.

Beyond webcams and videoconferencing: informal video communication on the web

Nicolas Roussel
Universite de Paris-Sud, France

A brave presentation – connection via live video with laboratories in Paris and elsewhere ... and it worked!

Nicolas described videoServer, a system somewhat like webcams, but with quite different design objectives. First, videoServer encodes moving video (live or pre-recorded) as a series of JPEG images. Second, videoServer is accessed via a normal URL. These two facts mean that virtually any web browser can be used to see videoServer images, without using any plug-ins or special download – the software installation is purely at the server end. With videoServer URLs are simply put in a normal image tag ... that's it. Third, the server can deliver either moving images or a still. Finally, when an image (still or moving) is requested, an event is generated at a notifier, which can be configured to give different forms of display at the end with a camera (e.g. a dialogue box or beep). The notification includes the machine and login of the person making the request (all normally sent by HTTP requests). This gives the observed person the chance to refuse to be seen or to modify the request. Also it means the observed person can respond appropriately (waving at the camera!).

Altogether this leads to a flexible system similar to other awareness systems such as Portholes, but with its own distinct properties, and ideally suited to light-weight web delivery.

AIMS – Academic Information Management System

Gareth Hughes
Southampton University

Despite the rather weird URLs it generates, Lotus Domino (aka Notes) is becoming a major player in Intranet and Internet development. For the beginner, it is relatively easy to generate 'vanilla' web pages from data held in a Domino database without ever seeing any HTML or scripting language. The only difficulty is installing the server! However, with extra effort and scripting, complex bespoke web applications can be created.

Gareth demonstrated just such a use of Domino, leveraging its built-in features to give a powerful Intranet system for higher education called Academic Information Management System (AIMS). AIMS allows the upload of official documents (student handbooks, minutes of meetings etc.) from any web browser. The documents are converted from a variety of original formats into web pages and PDF files which can then be viewed with any browser. Domino handles authentication, meaning the system is secure for semi-confidential documents.

These features are augmented by the use of Webcosm, Southampton's external linking service, which processes web pages on the fly so that glossary words become links. This means that all references to the 'student handbook' within the minutes of a departmental meeting automatically become links to the relevant document (or at least whatever the system recognises as 'student handbook'). Similarly, initials of staff members become links to their home page, and references to individual action items are linked to the meeting where they arose.

After Gareth connected to the Southampton server and demonstrated the system live, the overall response from the academics present who had any sort of administrative function was 'give us one today'. Happily, the system was developed as part of a JISC-funded project and so they can have it!

Dynamic web-based information management

Matt Pearcey[1], Darren Pywell[2] and David Tattersall[2]
[1]Intergral Ltd, [2]Intergral GmbH

Another document storage and access facility, but this time a bespoke application accessing a very large commercial document store. Matt described their system, called Enterprise Document Management System (EDMS). It is interesting to compare this with the previous presentation. With AIMS the objective was very easy upload with no additional work from the document producer. In EDMS, the initial lodging of a document in the database requires more work, explicitly adding structured meta-information. This reflects the different sizes of the document bases and the context in which they are deployed.

The design of EDMS centred around an analysis of the core business needs of the organisation. This influenced both the design of the system as a whole (human and automated aspects) and also the definition of a glossary of metadata attributes. The structured metadata allows the production of views tailored to the specific business needs of different users. The system can produce both hierarchically structured drill-down views and also free search of the document database, matching different user access methods. However, because the structured views are generated rather than hardwired, the system is free to evolve as the business changes around it.

As well as a user-rich design process (using RAD-style techniques), the system has been the subject of extensive usability testing and piloting before its deployment worldwide. This system is not free, but we're sure Intergral would be pleased to talk to you about it!
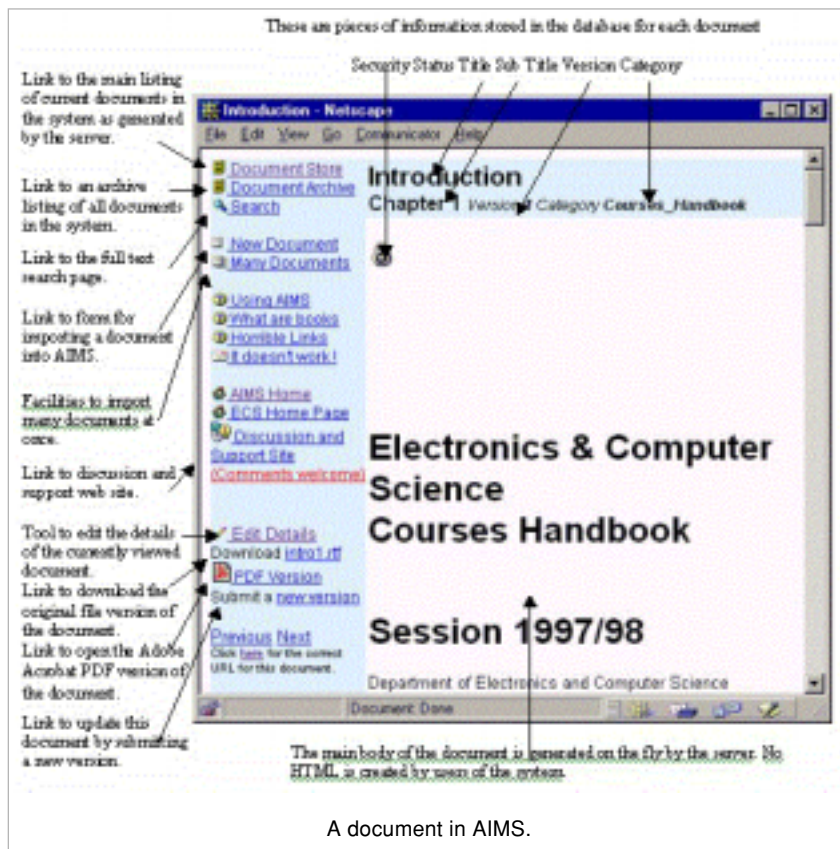
Personalized shopping in the web by monitoring the customer

Tanja Jörding and Stefan Michel
Dresden University of Technology

This paper picked up again a theme found in many of the papers – producing different views of the same underlying content. However, in the system Tanja described, called TELLIM (inTELLIgent Multimedia), these views are produced dynamically, adapted to each viewer's observed preferences.

This was the only talk where teleshopping was the central concern. Arguably a good UI is more important in teleshopping than in any other application. In a delivered system, if the user finds the user interface awkward then it's sad for them, but at least they've already bought it! With a teleshopping interface, if the customers find it hard to see the information they want in the way they want, then they simply won't buy.

The example system for this talk was a car catalogue. Each car has various multimedia elements: still images, movies, text descriptions.

A document in AIMS.

Initially a 'vanilla' page is generated for the first car with medium-sized graphics, some text, etc. The user can then interact: zoom into a larger image, play a movie, ask for more textual detail. All the time TELLIM is monitoring the interactions, using machine learning techniques to build a model of the user's preferences. Then, when the user moves on to look at another car, the generated page is formatted to reflect those preferences. If the user has previously zoomed into images, but not expanded text, then the page for the new car has larger images and less text. [*See front cover*.]

This form of real-time adaptation is rare in standalone user interfaces and possibly unique on the web.

Further info and URLs

- Proceedings of 'The Active Web', Dave Clarke, Alan Dix and Fiona Dix (eds), Staffordshire University, ISBN 1 897898 45 2
- The Active Web conference (includes full proceedings, related links etc.)
  http://www.hiraeth.com/conf/ActiveWeb/
  http://www.visualize.uk.com/conf/ActiveWeb/
- aQtive limited
  http://www.aqtive.com/
- web-research-uk
  http://www.mailbase.ac.uk/lists/web-research-uk/
- Time and the Web site
  http://www.hiraeth.com/conf/web97/
- Alan's Active Web articles and glossary
  http://www.hiraeth.com/alan/papers/ActiveWeb/
- blaxxun interactive AG
  http://www.blaxxun.com/
- Circle of Fire Studios Inc.
  http://www.activeworlds.com/
- WCML compiler and papers
  http://www.teco.edu/~gaedke/webe/
  http://www.teco.edu/~hwg/www6/PAPER232.html
  http://www.teco.edu/~gaedke/webe/activeweb/
- PageSpace info
  http://www.cs.unibo.it/~rossi/jada/
  http://flp.cs.tu-berlin.de/~pagespc/
- AIMS home page
  http://aims.ecs.soton.ac.uk/
- webcosm home page
  http://www.webcosm.com/
- further TELLIM paper
  http://www.inf.tu-dresden.de/~tj4/reports/tellim1.html
- Intergral
  http://www.intergral.com/

and now ...

Given the level of interest and high quality of the papers, we are exploring several ways to move on from the day conference itself.

the web

The full conference proceedings are available at the conference web site. Anyone is welcome to send us URLs for web sites, articles and on-line demos on the theme of the Active Web and we will add links to them to the web site.

the journal

There is going to be a special issue of *Interacting with Computers* on the theme of "Interfaces for the Active Web". The call is open and we invite papers from those who attended and presented at the conference, and anyone else working on the HCI aspects of the active web. (N.B. HCI Group members get a reduced subscription to IwC!)

the book

We have begun preparations for a book on the Active Web resulting in part from the day conference. This is intended to have quite a different flavour from the proposed IwC special issue. The book will have a dual practitioner/researcher slant, with a strong focus towards the practical aspects of producing dynamic web material. It will not be a 'proceedings', but instead an authored book with chapters drawn partly from appropriate submissions at the conference, partly from other invited contributors and partly written specially by the book's authors.

the followup

It has been suggested that a followup activity should be organised at Interact99: a pre-conference workshop and/or a panel session. Please watch the Active Web web pages for more information.

the community

Many research students are using active web technology, either as an object of study in itself, or as a prototyping platform for other UI and CSCW issues. One of the bursary students suggested that a contact group would be useful to exchange ideas, act as a central resource for useful URLs, etc. If you are interested in joining such a group, please email activeweb@hiraeth.com

Dave Clarke
Visualize Software Ltd
Tel: 0410 481863
Email:
dclarke@visualize.uk.com
Web: www.visualize.uk.com

Alan Dix
aQtive limited
Tel: +44 (0)121 414 2607
Email: alan@aqtive.bham.ac.uk
and
Staffordshire University
Tel +44 (0)1785 353428
Email: A.J.Dix@soc.staffs.ac.uk

CALL FOR PAPERS: IwC Journal

"Interfaces for the Active Web"

A special issue of Interacting with Computers, *the interdisciplinary journal of human–computer interaction*

The General Editorial and Management Board of the journal *Interacting with Computers* invites practitioners and academics to participate in a special issue dedicated to interfaces for the active web. Visit the web pages for information about potential topics and submissions procedure:

http://www.visualize.uk.com/iwc/activeweb
http://www.hiraeth.com/iwc/activeweb

Paper submission deadline *15th June 1999*

Guest Editors
Dave Clarke
Alan Dix

Report: CSCW-North Revived

Susan Turner

CSCW-North revived

CSCW-North is an informal group of researchers, educators and practitioners with a common interest in CSCW. Our meetings take different forms, from interactive workshops to more conventional presentations, but are always in the North of the UK. (In operational terms, this means roughly Sheffield and above, but we argue about the definition from time to time.) The group has been dormant for a little while, but sprang back into life with a stimulating meeting on 15th January 1999 at the University of Northumbria. Presentation summaries from this meeting are printed here.

The *next meeting* will be on 15th April 1999 at Durham (contact Sarah.Drummond@durham.ac.uk) and more meetings are planned.

To join CSCW-North, simply add your name to the mailing list via
    http://www.mailbase.ac.uk

More about the group may be found at
    http://
      kingfisher.cms.shu.ac.uk/
      cscwn/cscwn.htm

Responsibilities and information in CSCW

Ros Strens, Phil Turner and Susan Turner, University of Northumbria
ros.strens@unn.ac.uk
susan.turner@unn.ac.uk
phil.turner@unn.ac.uk

This talk focused on information as a component of CSCW systems. The authors argued that both content and properties of information generate requirements on CSCW systems design and implementation. Responsibility modelling was proposed as a tool for reasoning about this aspect of CSCW. This approach can be used to identify the requirements of team members that must be met for them to be able to fulfil their responsibilities. As well as identifying what they need to do in their work roles, it also defines what information they need. These needs are expressed not just in terms of information content, but also in terms of properties, such as timeliness, completeness, security status and accuracy. The responsibility approach can also be applied to analyse and predict user acceptance, for specifying the allocation of responsibilities for information as a shared object in group working and for providing an understanding of how responsibilities influence the interpretation and perceived properties of information. Several examples and a small case study showed how responsibility modelling has been applied in practice.

Failure in collaborative settings

Steve Pocock, University of York
stevep@minster.cs.york.ac.uk

An understanding, as far as it is possible, of the role played by human error in assessing problems involving collaboration and cooperation between agents in a safety-critical system, such as on the flight deck of a modern aircraft, is a vital component in any attempt to better understand the nature of incidents and accidents. But merely highlighting an actor in isolation and apportioning individual responsibility in the wake of an accident may take little account of the fact that many systems in aviation rely increasingly on effective distribution of information and collaboration for their success. When distributing success, however, we may also unwittingly be distributing failure.

Analysing the conversations of air traffic controllers

Chris Fairburn, University of York
chrisf@minster.cs.york.ac.uk

The presentation used an example scenario from the domain of air traffic control (ATC) to illustrate how current forms of analysis such as distributed cognition may largely ignore the more subtle aspects of group working associated with collaboration and coordination. It was argued that the work

of Herbert H. Clark in the domain of conversation/language analysis may provide a semi-formalised way of describing collaborative work when considered from a distributed cognition viewpoint. The application of principles associated with common ground/mutual knowledge, and Clark's notion of 'participants' were said to provide an effective language for the discussion of collaborative work when related to the types of communication shown to exist in such situations. The implications of this type of technique were discussed with reference to the introduction of new technology into existing complex environments and the apparent bias of distributed cognition towards externalised and over simplified internalised methods of information representation.

CSCW and the virtual organisation

Mark Rouncefield and Peter Tolmie, University of Lancaster
M.Rouncefield@lancaster.ac.uk

This talk discussed an ethnographically informed ethnography of a large retail banking organisation. While the concept of the completely 'virtual organisation' might be over-hyped, the bank could be observed in the process of 'becoming virtual' as functions became separated – sometimes geographically – into specialist units. Among many other issues described, for managers this meant a move away from management by walking about, while there was a new need to manage performance data into telling the proper story. For staff, effects included an increased focus on selling and the replacement of local knowledge with the categorisation of customer types. For all, while technology was not always a hindrance, work-arounds were a part of everyday life. Finally, problems lay in the development of a virtual corporate culture and issues of distributed coordination.

Groupware for software engineering student group projects

Sarah Drummond and Cornelia Boldyreff, University of Durham
sarah.drummond@durham.ac.uk
Cornelia.Boldyreff@durham.ac.uk

This talk outlined work carried out during the recently completed two year project, "Developing a Virtual Community for Student Groupwork", funded under the JISC JTAP banner (Joint Information Systems Committee – JISC Technology Applications Programme). This involved collaborative work between UMIST, Keele and Durham Universities. The aim was to determine the feasibility of software engineering group projects by students in geographically different locations, using technologies such as desktop video conferencing (DVC) and a shared information space. The main focus of the talk involved explaining how the results of the JTAP project had been diffused into the second year software engineering group (SEG) work at Durham. In the

case of DVC it was found that this had limited use for students located at the same site. Therefore, more emphasis had been placed on developing a shared information space. This resulted in the development of SEGWorld, a virtual environment adapted from BSCW (Basic Support for Cooperative Work) [http:bscw.gmd.de]. SEGWorld basically offers the students a central repository for group deliverables, and, importantly, an awareness mechanism showing the activities of other group members.

Hypotheses investigated over a period of one academic year covered the areas of organisation and coordination, the role DVC plays in software engineering, the levels of collaboration at the various stages of the software lifecycle, and the level of use of the functions provided by SEGWorld.

Dimensions of uptake in CSCW

Phil Turner and Susan Turner, University of Northumbria
phil.turner@unn.ac.uk
susan.turner@unn.ac.uk

In attempting to understand the results of a pilot introduction of computer supported cooperative work (CSCW) in a large engineering consultancy, the authors examined both specifically CSCW and Information Systems (IS) accounts of technology uptake. The main conclusions were that while there are as yet no systematic models of uptake in the specialist CSCW domain, the dimensions of uptake identified in IS models were sufficient to explain both the case study findings and many of the diverse collection of technology application case studies found in the CSCW literature. Factors specific to CSCW appeared to be social issues such as the establishment of trust and shared working conventions. It was argued that case study based work in this area of CSCW should concentrate on the systematic modelling of these social factors, while drawing on the substantial body of existing IS work on other issues.

Susan Turner
Department of Computing and Mathematics
University of Northumbria at Newcastle
Email: susan.turner@unn.ac.uk

British HCI Group
www.bcs.org.uk/hci

Users First
10–16 April
1999

Users First — The British HCI Group is pleased to announce the following week of events placing the users of information and communication technology first in the design process. For visitors from outside the UK this is an opportunity to take in several related events in a single trip. For others a chance to indulge in a festival of research into user-centred design. Go to: http://kmi.open.ac.uk/sbs/bcs-hci/users-first.html

Affective Computing: The Role of Emotion in Human–Computer Interaction

Special Guest Speaker: Rosalind Picard, MIT Media Lab
Saturday 10th April 1999, University College London
What part does emotion play in human cognition and communication? How may it enhance human–computer interaction in the future? The main purpose of the meeting is to gather together researchers interested in these and related questions to discuss a research agenda. The meeting will allow the sharing of perspectives by speakers at the forefront of different relevant research areas.

Info: Gillian Wilson, Tel: +44 171 419 3462, Email: g.wilson@cs.ucl.ac.uk
Website: http://www.york.ac.uk/~am1/affective.html

Changing Places: Working In Real And Virtual Space

Monday, 12 April 1999, Queen Mary & Westfield College, London
The aim of this workshop is to gather experience of designing, using and evaluating models of collaborative workspaces, in particular, the ability of these models to support users' differing and changing needs. The workshop will consist of talks by and discussion with invited speakers, and debate and discussion about the issues raised.

Info: Tim Kindberg, Email: changing-places@dcs.qmw.ac.uk
Website: http://www.dcs.qmw.ac.uk/research/distrib/Mushroom/workshop/

Effective Teaching and Training in Human-Computer Interaction

Monday 12 and Tuesday 13 April 1999, South Bank University, London.
User-centred design, or Human–Computer Interaction (HCI), has long been seen as a Cinderella subject within computing curricula. However, increasingly the need to produce systems that are effective, efficient and enjoyable is being seen as a major factor in the success or failure of projects. Various reports on computing education have emphasised the need for effective integration of HCI within the mainstream education experience of all students, at all levels. This workshop will bring together educators committed to this vision, who will supply practical, classroom proven, case-study material of course work, projects and examinations with the intention of sharing, evaluating and further developing their experiences.

Info: Sylvia Alexander, Tel: +44 1232 388020, Email: CTIComp@ulst.ac.uk
Website: http://www.ulst.ac.uk/cticomp/hci99.html

Human Error and Clinical Systems

Thursday 15 and Friday 16 April, 1999, University of Glasgow
Human error in the management and operation of clinical information systems is an increasing focus for public concern. Clinicians are being presented with increasingly complex user interfaces to diagnostic and therapeutic systems. At the same time, their managers are being faced with the challenge of purchasing, maintaining and integrating new systems into already complex operational structures. These factors raise profound issues that affect systems engineering, clinical training, managerial control and incident reporting. This workshop will, therefore, provide a forum for practitioners and researchers to discuss leading edge techniques that can be used to assess and mitigate the impact of human error with complex clinical systems.

Info: Prof. Chris Johnson, Tel: +44 141 330 6053, Email: johnson@dcs.glasgow.ac.uk
Website: http://www.dcs.gla.ac.uk/~johnson/HECS.html

British HCI Group – Application Form 1999

Please print or type

Contact Details (Give a personal contact when asking for Corporate Membership)

Title .... First Name .... Last Name ....

Work Address ....

....

Tel. .... Fax ....

E-mail ....

Nature of the work you do: ....

Home Address ....

....

Please send mailings to: my work address ☐; my home address ☐.

Membership Status

Current British HCI Group Membership No. (if applicable) ....

Current British BCS Membership No. (if applicable) ....

Student status (if applicable) ....

Professional Interests (please indicate up to six areas of professional interest)

....

....

Data Protection Act

The data on this form will be treated as confidential to the BCS. Names and address may be used, under our strict control, for mailings judged by the British HCI Group Executive to be of value to the membership.

Membership Directory

Do you wish your contact details and professional interests to be listed in the Membership Directory sent to all members of the group? (We will NOT use your home address, unless that is all you have given us.)   Yes ☐   No ☐

Getting Involved…

We are always looking for people interested in contributing to HCI group activities by, writing for *Interfaces* magazine, helping run the annual conference or joining the executive. If you are able to contribute in this way or if you have ideas for 1-day meetings or new activities please contact the membership secretary, Ismail Ismail (I.Ismail@cs.ucl.ac.uk; Fax. 0171-387-1397).

Membership Fee

Membership classes and fees for 1998 are:

BCS Member £25 ☐   Non BCS Member £30 ☐   Student £10 ☐   £ ....

Corporate £195 ☐ Corporate membership entitles the organisation to 8 copies of *Interfaces* and other mailings; membership rate for any 4 individuals at British HCI Group events, as well as, a free one-page entry in the membership handbook.

Journal Subscription to 'Interacting with Computers'

The HCI Group manages a journal, *Interacting with Computers*, published quarterly by Elsevier Science. Members may subscribe to this journal at a reduced rate. Vol. 11–No.1 will appear in the Spring of 1999.

Please send me Vol. 10 (1998) of *Interacting with Computers* (£50)   £ ....

Please send me Vols. 9 & 10 of *Interacting with Computers* (£100)   £ ....

Please send me a free sample issue ☐

Payment

Please enter the total amount for membership and subscriptions   £ ....

I enclose a cheque/postal order (in Pounds Sterling only please), made payable to *British HCI Group*

or

Please debit my Access/Visa/Mastercard

Card number ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐   Expiry ☐☐ / ☐☐ / ☐☐

The information provided on this form is to my knowledge correct and I agree to the conditions stated.

Signature: ....   Date: ....

Card holder's name and address if different from above:

....

....

Send completed forms and cheques to:

HCI Membership, British Computer Society, 1 Sanford Street, Swindon, SN1 1HJ, UK

(Tel.+44(0)1793 417417)

Queries about membership can also be e-mailed to: hci@hq.bcs.org.uk

HCI Executive *Contact List*

Chair
Andrew Monk
University of York
Tel: **+44(0) 1904 433148**
Fax: **+44(0) 1904 433181**
Email: **am1@york.ac.uk**

Secretary & membership
Ismail Ismail
University College London
Tel: **+44(0) 171 419 3664**
Fax: **+44(0) 171 387 1397**
Email: **l.Ismail@cs.ucl.ac.uk**

Treasurer
Chris Johnson
University of Glasgow
Tel: **+44(0) 141 330 6053**
Fax: **+44(0) 141 330 4913**
Email: **johnson@dcs.glasgow.ac.uk**

Interfaces
Janet Finlay
University of Huddersfield
Tel: **+44(0) 1484 472913**
Fax: **+44(0) 1484 421106**
Email: **j.e.finlay@hud.ac.uk**

Meetings officer
Bob Steele
Sheffield Hallam University
Tel: **+44(0) 114 253 3155**
Fax: **+44(0) 114 253 3161**
Email: **R.Steele@shu.ac.uk**

Mailing list moderator
Adrian G. Williamson
University of Paisley
Tel: **+44(0) 141 848 3752**
Fax: **+44(0) 141 848 3542**
Email: **A.Williamson@paisley.ac.uk**

HCI Web resources
Simon Buckingham Shum
The Open University
Tel: **+44(0) 1908 655723**
Fax: **+44(0) 1908 653169**
Email: **S.Buckingham.Shum@open.ac.uk**

IwC editor
Dianne Murray
Tel: **+44(0) 181 943 3784**
Fax: **+44(0) 181 943 3377**
Email: **dianne@dcs.kcl.ac.uk**

BCS liaison
Stella Mills
Cheltenham & Gloucester College of Higher Education
Tel: **+44(0) 1242 543231**
Fax: **+44(0) 1242 543327**
Email: **smills@chelt.ac.uk**

SIGCHI liaison
Gilbert Cockton
University of Sunderland
Tel: **+44(0) 191 515 3394**
Fax: **+44(0) 191 515 2781**
Email: **Gilbert.Cockton@sunderland.ac.uk**

Conference planning
Chris Roast
Sheffield Hallam University
Tel: **+44(0) 114 225 5555**
        (switchboard)
Fax: **+44(0) 114 225 3161**
Email: **C.R.Roast@shu.ac.uk**

Practitioner representatives
Rory Channer
AIT Ltd
Tel: **+44(0) 1491 416778**
Fax: **+44(0) 1491 416601**
Email: **Rory.Channer@ait.co.uk**

Dave Clarke
Visualize Software Ltd
Tel: **+44(0) 410 481863**
Email: **dclarke@visualize.uk.com**

Ian Curson
Serco Consultancy
Tel: **+44(0) 181 614 3784**
Fax: **+44(0) 114 614 3765**
Email: **icurson@usability.serco.com**

Michael Gardner
BT Laboratories
Tel: **+44(0) 1473 606500**
Fax: **+44(0) 1473 606759**
Email: **michael.gardner@bt-sys.bt.co.uk**

David Jennings
David Jennings Associates
Tel: **+44(0) 114 249 3435**
Fax: **+44(0) 114 249 3450**
Email: **david@djassociates.com**

Student representatives
Daphne Economou
Manchester Metropolitan University
Tel: **+44(0) 161 247 1492**
Fax: **+44(0) 161 247 1483**
Email: **D.Economou@doc.mmu.ac.uk**

Rakhi Rajani
Brunel University
Tel: **+44(0) 895 274 000 ext. 2396**
Fax: **+44(0) 895 251686**
Email: **rakhi@dircon.co.uk**

Peter Wild
Brunel University
Tel: **+44(0) 895 274 000 ext. 2396**
Fax: **+44(0) 895 251686**
Email: **Peter.Wild@brunel.ac.uk**

HCI Curriculum Group liaison
Linda Hole
Bournemouth University
Tel: **+44(0) 1202 595251**
Fax: **+44(0) 1202 595314**
Email: **lhole@bournemouth.ac.uk**

INTERACT '99 Conference liaison
Alistair Kilgour
Heriot-Watt University
Tel: **+44(0) 131 451 3438**
Fax: **+44(0) 131 451 3327**
Email: **A.C.Kilgour@hw.ac.uk**

Ordinary member
Alan Dix
aQtive limited & Staffordshire University
Tel: **+44(0) 121 414 2607**
        +44(0) 1785 353428
Fax: **+44(0) 121 414 2662**
Email: **A.J.Dix@soc.staffs.ac.uk**

BCS CONTACTS
Sue Tueton (Membership) hci@hq.bcs.org.uk
+44(0) 1793 417416
Andrew Wilkes (Committees)
awilkes@bcs.org.uk, +44(0) 1793 417471
Stephen Blanchard (Specialist groups)
Bob Hill (Printing) +44(0) 1793 417486

The British Computer Society
1 Sanford Street
Swindon SN1 1HJ
Tel: **+44(0) 1793 417417**
Fax: **+44(0) 1793 480270**
Email: **hci@bcs.org.uk**