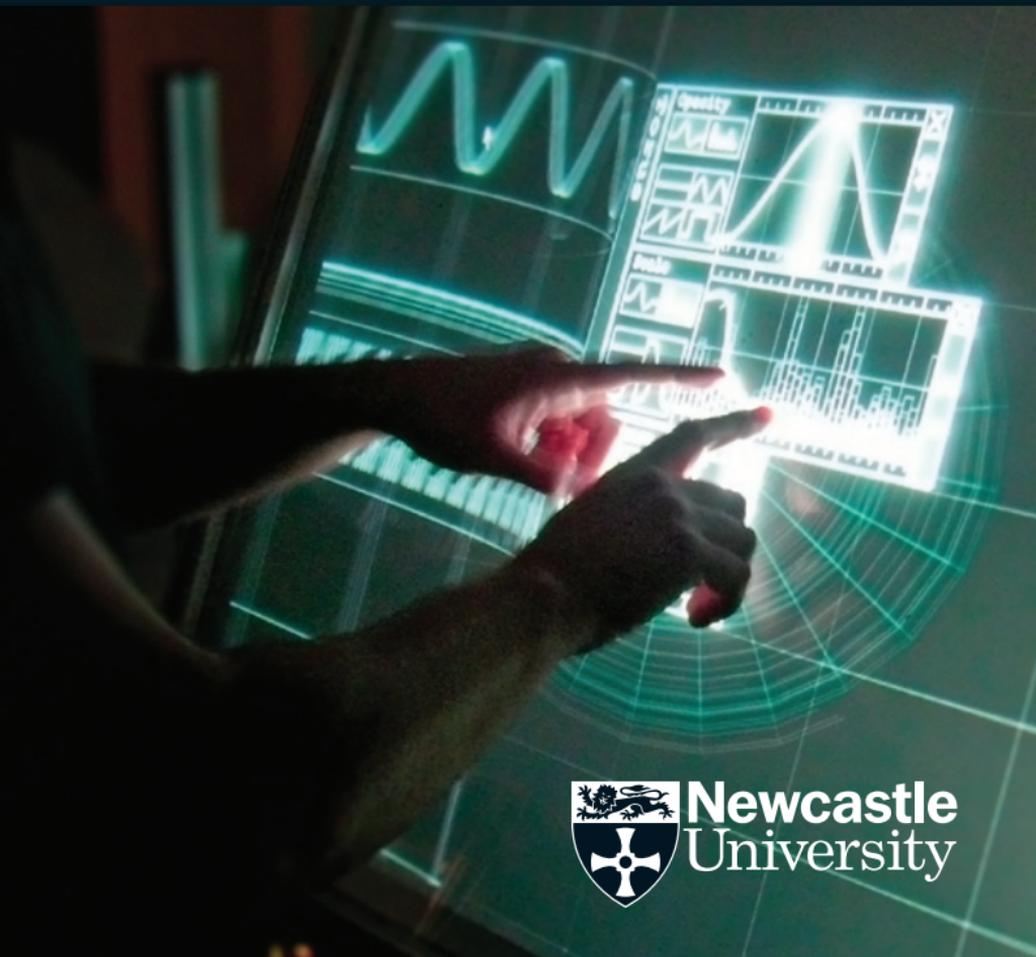


Interactive Experience

The 25th BCS Conference on
Human-Computer Interaction

Culture Lab @ Newcastle University

7 July 2011



Newcastle
University

Welcome

Welcome to the Interactive Experience session of the 25th BCS Conference on Human-Computer Interaction. The session provides researchers and practitioners in interaction design the opportunity to demo their work and discuss actual designs and installations with conference attendees. The 30 demos on display reflect the tremendous diversity of HCI research practice and range from privacy preserving eye-tracker interaction for an ATM, to digital art installations that explore new notions of creative expression. The session is convened in Culture Lab, Newcastle University's centre for cross-disciplinary digital practice, and also includes number of demos and performances from members of Culture Lab's Digital Interaction Group. Participation is the key to a successful session so please take the opportunity to talk to the participants presenting their work and take the opportunity try out as many demos as possible!



Tom Bartindale



Elizabeth Churchill



Patrick Olivier

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The Attraction of Dance

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In many animals male movements honestly reflect reproductive quality. We used motion-capture to identify possible biomechanical differences between women's perceptions of 'good' and 'bad' male dancers. Nineteen males were recorded using 'Vicon' whilst dancing to a basic rhythm; controlled stimuli in the form of avatars were then created using Motion-Builder and rated by 39 females for dance quality. Certain movement measures were key predictors of dance quality, especially variability and amplitude of the neck and trunk. We have identified specific movements in men's dance that influence women's perceptions of dancing ability. Such movements may form honest signals of male quality.



Virtual VJ

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Virtual VJ employs motion tracking technology in order to allow participants to use space as an audio and video performance tool. *Virtual VJ* unites the role of the DJ and VJ into one interface: motion in 3D space. *Virtual VJ* enables users to control different aspects of the sound and video environment with their movements. One tracker is set to trigger sound and video and the other is set to manipulate the sound and video initiated by the first tracker. The key conceptual idea explored is the idea of cooperation and the sense of personal space in ephemeral, virtual systems.



Outputs from the Future Interactions Network

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The Future Interactions Network is a group of researchers and practitioners within Edinburgh Napier University's Centre for Interaction Design whose focus is on the impact of emerging digital technologies and novel UI paradigms (such as gesture, speech and multi-touch) on traditional analogue spaces, the people that use them and the activities that take place within them. We will be showcasing some of our work including the University's Interactive Collaborative Environment (ICE), a multi-user, multi-surface real world space for collaborative activity, as well as a similar space designed and developed for the Redlands Police Department in California.



Multimodal Media Interaction with Mobile Devices

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We demonstrate the use of a mobile device to provide multifunctional input and output for a stereoscopic 3D TV. Through example applications, we demonstrate how a combination of gestural and haptic input (touch and pressure) can be successfully deployed to allow the user to navigate a complex information space (multimedia and TV content), while at the same time visual and haptic (thermal and vibrotactile) feedback can be used to enrich the user experience. We also demonstrate the use of device-free gestures for interaction and how they can be used in conjunction with a mobile device on your person.





Join In

Laura Boffi, Sara Traversari & Massimo Zancanaro » Fbk saratraverz@gmail.com

Join In is a suite of collaborative games on an interactive surface to support cognitive behavioral therapy (CBT) with autistic children. The design facilitates a therapy session around the interactive table in which a therapist and two children take part. *Join In* support a learning phase, discussion of collaborative scenarios, and an experiencing component in which participants actively play together in collaborative games on the interactive surface. *Join In* is a part of the COSPATIAL project which is seeking to develop collaborative technologies designed to promote learning of social competence by all children, but including those with Autistic Spectrum Disorders (ASD).

TagTree:

Storing and Re-Finding Files Using Tags

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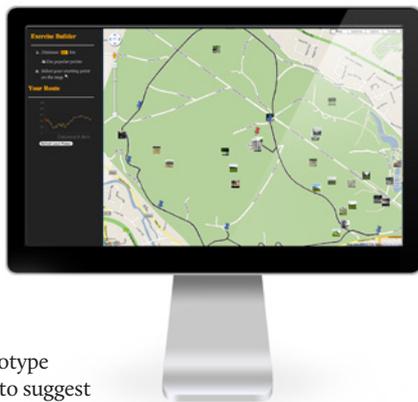
tagstore is research software developed at the Institute for Software Technology of Graz University of Technology in Austria. It is being used to find better ways to manage files and folders on the local hard disk drive. In a *tagstore*, files and folders are tagged by the user. Using these tags, *tagstore* generates a navigation hierarchy called a TagTree. Within the TagTree, users are able to navigate using standard software tools like file browsers, and file Save/Open dialogues. In fact, TagTrees can be used with any existing end user application. *Tagstore* is available in source code and as binaries under GPL v3 for Windows, Linux, and Mac OS X from <http://tagstore.org/>.



Run Recommender

Interactive Recommendation using Multimedia

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Run Recommender is a prototype exemplar system designed to suggest generally good running routes to runners unfamiliar with an area. It is a novel approach to such recommendation because of a new approach to combining experiences used to form the runs, and also because of its methods of refining the recommendation using an interactive style. The user's interaction with the system involves exploring the surrounding area through multimedia embedded in the map and modifying the route, as well as examining the associated data to refine the best run for them.



This Pervasive Day

Experiences of User Heaven and Techno Hell

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This Pervasive Day is a collection of digital artifacts that inform, surprise, and question the 'always on' nature of pervasive computing. Including, an interactive documentary (iDoc) that explores themes of user heaven and hell, elicits viewer opinion on the challenges raised, and feedbacks this data through rich onscreen visualizations, face detection & identity assignment using webcams to detect the human face - then assigning random identity data in a thought-provoking manner, and finally augmented reality interactions via AR tags available to attendees that activate novel 3D imagery when held up to a webcam.

Reviving the Social Life of Aphasiacs

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The appointment maker is a hand held device that assists patients with aphasia (an acquired language disorder) in making appointments. Our aim was to facilitate and improve the quality of the lives of these aphasics by emphasizing on the regaining of control over their social lives. The appointment maker is suitable for sending and receiving invitations, maintaining correct agenda, adding contacts and places.

Our design tries to put them in control of their social life again by enabling them to make appointments with non patients or other aphasia patients. Making an appointment consists of speaking to another person, responding and writing down appointments, all of these are problematic for the aphasics. The way our device aids in this is by presenting the appointment in a visual way. Thus enabling them to make appointments and keep their agenda updated.



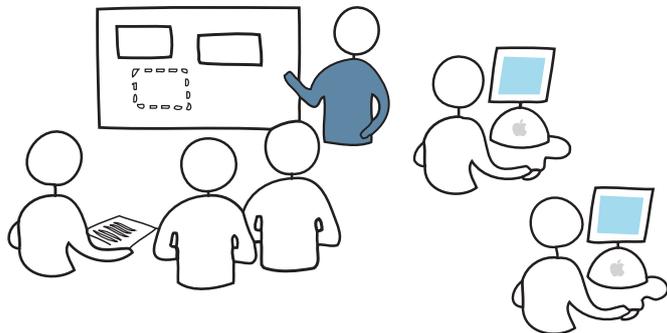
Photography: Dale Wilson 2011

FEAR

Free Experimentation Aids Revelation

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Traditionally the design and production of motion graphics and animation is a slow, quiet process. The aim of this project, from the perspective of the student participant, is to show the inter-relationship between sound and visuals, and how they can tap into a more spontaneous form of creativity by designing visual work interactively in real-time. This project gives the student freedom to produce visual work live as they produce sounds and react to music, and other environmental stimuli. The aim of the project, from a pedagogic perspective, is to consider how students drive their own creative development through an independent and collaborative approach to learning.



The Sediment Project

Connections, Conversations & Observations within Interaction Design

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The Sediment project began in July 2009 and was conceived as a result of not being able to attend a human-computer interaction and design conference in London. It was originally intended to capture conference conversations, but has since expanded to thousands of events & topics within the field of Interaction Design and User Experience. To date, it has captured over 4 million tweets, 6 million #tags by 1 million unique user across the globe across multiple languages. The project aims to help identify and visualize trends in language, conversations as well as the relationships created within design, user experience and interaction design.

GRAFFITO MASHUP

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Graffito Mashup is the world's first multi-participant iPhone, iPad and iPod Touch App that uses social networking to allow anyone to draw graffiti and remix digital images with anyone, anywhere in the world at the same time. Participants can draw digital graffiti in real time with their finger, or by shaking the mobile phone, and can pull in and mashup images from online sources such as Flickr. Images slowly fade out over a minute, encouraging quick, lightweight contributions, providing continuous interaction opportunities. It's the world's first global graffiti mashup!



CareCruiser

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CareCruiser is a software prototype designed to visualize the effects that a treatment has on a patient's condition and to support the interactive exploration of these effects. It offers three views to show specific information: one view visualizing the logics of treatment plans, one showing the hierarchical structure of these plans, and another view depicting time constraints. The latter provides several features to support a step-wise interactive exploration of the patient's condition and to support the detection of patterns of patient reactions to clinical actions: rearranging the data, color-highlighting of information, filtering, and focus + context techniques.



Stepping into the Comic Strip

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Social Comics is a fun, high-paced game that puts the player and their friends in the center of a comic strip. Social Comics combined social and physical gameplay with the ability for players to author their own content, which can then be easily shared online. Social Comics is easy to learn, fun to play, and also fun to watch. The Social Comics demo allows participants at the Interactive Experience session and create their own comic strips together! The system is also fully described in the author's paper ³Social Comics: A Casual Authoring System².



Collaborative Planetarium

Interaction Prototypes

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This project shows early interactive games designed to support collaborative tangible interaction in a projected planetarium dome. The concept for the project is an antithesis to the typical non-interactive and uninspiring media shown in a planetarium, making use of the novel affordances of the immersive environment and leveraging engaging interaction methods. The target age group is 6-16 years and the prototypes were inspired by designs from Year 1 (6/7 year old) children. The work is the first step towards an installation at UCLan's Alston Observatory, equipped with a hemi-spherical project planetarium used for teaching and school outreach activities.

Utilizing Digital Tabletops in Educational Settings

Digital Mysteries & Collocated Collaborative Writing



As part of our ongoing investigation of the support of tabletop technology for collaborative learning, we have developed a problem solving tool based on the paper-based "Mysteries" technique called "Digital Mysteries", and a collaborative writing tool based on the "Writing Frames" technique. Both tools focus on utilizing the unique affordances of tabletop technology and on encouraging effective collaboration skills capitalizing on these unique affordances. As a problem solving tool, Digital Mysteries focus on promoting higher level thinking skills such as reflection and meta-cognition. The writing tool on the other hand aims at turning the, usually individualistic, writing process into a visual-collaborative one thus increasing students involvement in the writing process.



Waves

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Waves is a multi-touch interface for VJing (the live performance of visual media such as video and CGI). The system allows performers to interact with a range of visual media by manipulating spline curves on an interactive surface. Interaction is highly visible to the audience and as such the contribution of the performer may be understood. Furthermore, the spline curves provide metonymical interaction, and as such give the performer the ability to perceive and directly manipulate the underlying properties of visual media.

The Lovers' Box

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The Lovers' box is a digital artefact designed to engage romantic couples in reflections on their relationship. By adopting perspectives from social psychology and interaction design, the research examines the role of reflection through the use of a non-traditional digital artefact. A field study was conducted involving five couples who were asked to exchange video messages using *the Lovers' box* over five weeks. The demo presents both the design process of the box as well as key findings of the study, and invites attendees to discuss the wider social and emotional implications of this project for the field of HCI.



BinCam

Waste Logging for Behavioural Change

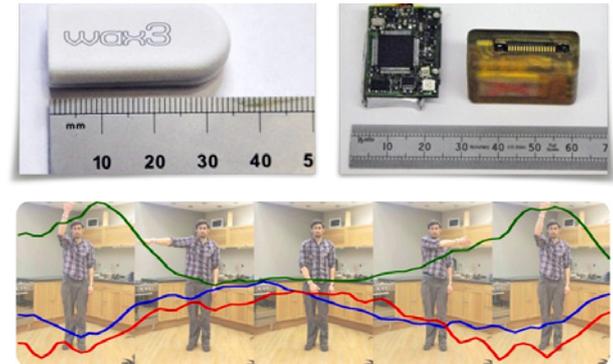
Jack Weeden, Anja Thieme & Julia Miebach » Newcastle University
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BinCam is a two-part personal informatics system designed to increase individuals' awareness of their food waste and recycling behaviour. It uses a standard kitchen bin augmented with a mobile phone on the inside of the lid to automatically capture and log an individual's waste management activity. Photos are tagged using Mechanical Turk and uploaded to the *BinCam* application on Facebook, which encourages playful engagement and reflection upon a user's personal bin data. People can review and share communications about the bin-related behaviour of themselves and others. Several challenges for designing and evaluating persuasive personal informatics systems will be discussed in the context of this system demo.



Embedded Accelerometers

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Reasoning about what people are doing at any moment in time is an open problem in computer science known as activity recognition. To do this in practice we need tiny, sensitive, sensors that can be both worn and embedded in the world around us. We will be showcasing two sensor platforms based on accelerometers (sensors that can measure acceleration): a Wireless Accelerometer (WAX) and Continuous Wave Accelerometry (CWA) device.



The Ambient Kitchen

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Cuong Pham &
Jurgen Wagner
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The Ambient Kitchen is an example of a pervasive computing environment tailored towards the needs of older people and people with cognitive impairment. The goal of *the Ambient Kitchen* is to extend the independence of these individuals to keep them living at home for as long as possible, postponing or even completely avoid the need for them to go into care. The kitchen includes a variety of sensors that detect and report on user's actions utilizing machine learning techniques to reason about the user's goals and to provide varied implicit and explicit prompts to help them be realised.

Nightingallery

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Nightingallery is an interactive musical installation where people can jam with a pair of eerie beautiful automata. As people approach *Nightingallery*, the bejewelled animatronic birds come to life, mimicking the sounds of passersby and weaving them into song. The birds, communicating with users via an old field-telephone, keep a memory of sounds they have heard and been taught and improvise upon what they hear. *Nightingallery* is part of an ongoing exploration of interaction with technology in public spaces.



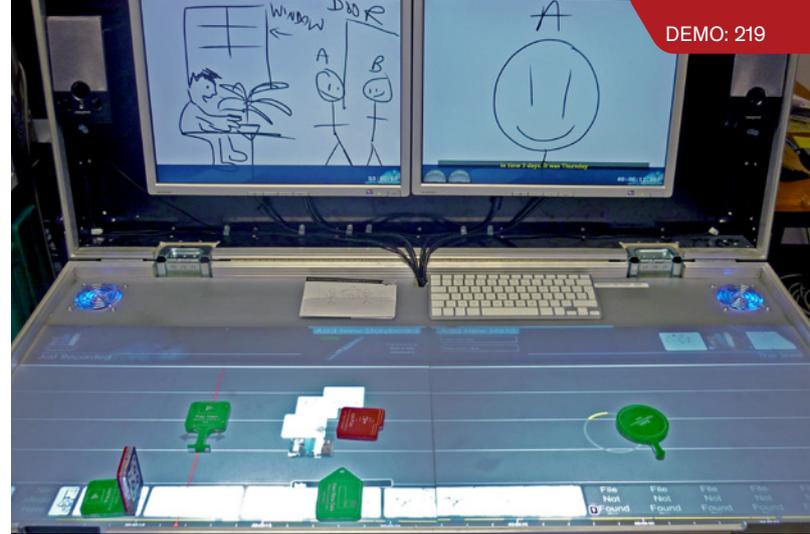
Talking Memory Box



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The 'Talking Memory Box' was developed to allow people to digitally record, store and playback stories. It was designed for families and schools, allowing people to record and share stories and experiences that are associated with both people and an object or an image of importance to them (e.g. a photo of a school trip).

What makes this device distinct from existing digital recording devices is that the audio content can be associated with images of people and/or artefacts. This content can then be retrieved by others through using people, objects, or the combination of both, as 'filters' to find content.



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BBC StoryCrate

Designed in collaboration with BBC R&D, *StoryCrate* is a revolutionary new production process for tv filming. Consisting of a high resolution tangible display built entirely into a portable flight case, its primary aim is to provide a global status indicator for the production which anyone on the team can access. It utilizes the skills and creativity of on-site production staff by allowing them to produce "rush" from live camera shots instantaneously, slotting them into the storyboard. This live storyboarding allows instant playback of clips in the final production order rather than the order in which it was shot, a never before accomplished process, especially while the shoot is taking place!

ThorDMX

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ThorDMX is a suite of interactive stage lighting control systems. It bridges the communication gap between designers, technicians and performers. Based around an easy to use wireless architecture which interfaces directly traditional venue technology, it allows user greater flexibility and control through multi-touch, finger painting, tablet and phone controls. Abstracting the user from difficult to remember tasks while still providing intuitive and accurate control is at the center of these designs, whilst using the skills effectively within the team. *ThorDMX* is constantly evolving with the input of professional production crew.



FlirtBar

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Starting conversation with new people is difficult for most of us. *FlirtBar* makes this first step easier by providing a central focus for strangers in a bar. Drinks mats placed on the surface gain a personality, and when moved in proximity, start “flirting” with each other. Chat-up lines flow across bar between the mats, and mats can even “interrupt” other conversations if placed too close. By providing a set of absurd and hilarious lines for the mats to use, strangers around the table are triggered to communicate, thus breaking the ice more readily.



Viewpoint

Simple Community Democracy

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Justin Marshall » University College Falmouth

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Viewpoint is a simple, lightweight voting mechanism designed to allow organizations and elected representatives to solicit feedback from a community and provide residents with a 'voice' in local matters. Councillors and community groups can post weekly questions on three Viewpoint devices deployed in public locations around the Callon and Fishwick areas of Preston, where residents can vote using buttons on the front of the device. When each poll closes, question posters can then submit responses to be displayed on the devices.

PLAY

Digital Play Therapy for Primary School Children

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The purpose of this research is to investigate how children and play therapists could use digital technology at different stages of play therapy. The study also aims to establish a paradigm of understanding as to what the advantages and barriers are for the use of multi-touch digital technology in play therapy. Non-directive play therapy principles and theories were followed to design software which allows a child to make avatars, create comic books, pick, resize and rotate images etc. on a digital tabletop surface.



Cueing Swallowing in Parkinson's Disease



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A significant symptom mentioned by many people with Parkinson's disease concerns 'sialorrhoea', or drooling. Drooling can impact an individual's quality of life both socially, by causing social embarrassment and isolation, and health-wise. Saliva that remains pooled in the mouth can become an aspiration source, and can in some cases result in choking or pneumonia. The aim of this study was to develop a cueing device, through participatory design, which would vibrate at regular intervals to act as reminder for the wearer to swallow their saliva, thus reducing drooling. Care was taken to design a device which would not become a source of stigmatization for the wearer, but would enable them to engage with the object, in ways beyond the clinical and functional aspects of what it provided.

My Great North Run

Rachel Clarke & Tom Bartindale » Newcastle University
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My Great North Run was an interactive museum installation designed to extend visitor participation through personal reflection and contribution. It was created as part of the Great North Museum's summer exhibition *In The Long Run* in 2010. The installation captured and displayed stories about people's personal experiences of the Run, receiving 13,000 submissions over three months. We will show a section of the installation, combining touch screens, Anoto digital pens and a website, with examples of the user-generated content submitted during the exhibition.



Eye Tracking at the ATM

Paul Dunphy & Rachel Phillips

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Knowledge-based authentication credentials are vulnerable to being observed at the point of login. This problem is interesting at the ATM where bank customers queue in close proximity to each other, relying on social constraints to avoid malicious recording of PINs. This scenario has in the past facilitated crime. However what if there was an interaction that did not leak information? Eye trackers intrinsically afford invisible interaction with a computer system, so how might they be used at the ATM...?



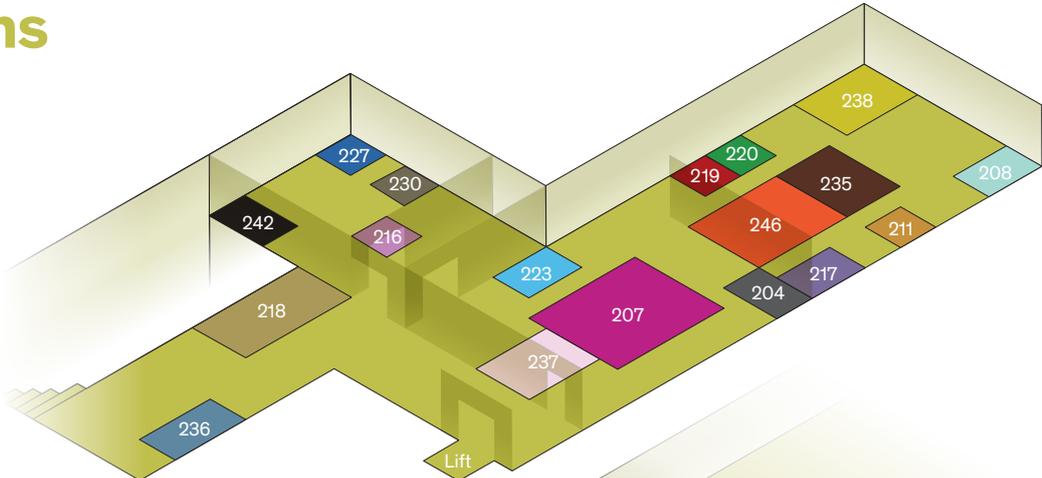
Mind Cupola

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Phil Culverhouse, Chris Ford, Hanns Rutz
& George Clark » University of Plymouth
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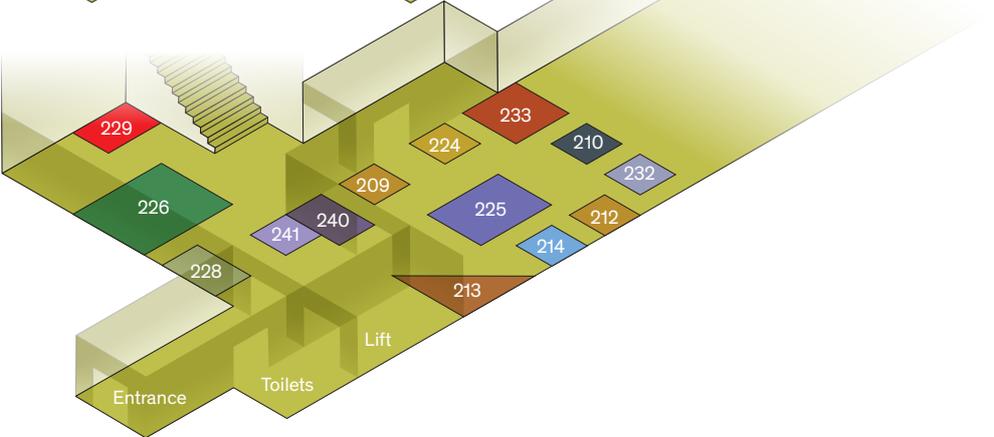
The *Mind Cupola* is an affective computing based interactive artwork that explores a participant's consciousness via generative audio and visuals that provides an immersive experience. Participants are invited to interact with the audiovisual display through their eye movements. In this encounter they have to control groups of visual elements with particular eye behaviours in order to generate the next stage of the visualisation. The *Mind Cupola* encourages the participant to recognize the laws of interacting with it, emphasising self-observation and self-control. They are successful when the system allows them to write their own messages and access previous participants creations.

Floor Plans

First Floor



Ground Floor



Kindly supported by:

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Experience a new world of interaction