

### An invitation to experience the latest in user interface technology

The Human Computer Interaction group at the University of St Andrews is hosting two leading ACM conferences this year.

The 8<sup>th</sup> ACM International Conference on Interactive Tabletops and Surfaces (ITS), a premiere venue for research in the design and use of new and emerging tabletop and interactive surface technologies.

The 26<sup>th</sup> ACM Symposium on User Interface Software and Technology (UIST) is the premier forum for innovations in human-computer interfaces. Sponsored by ACM special interest groups on computer-human interaction (SIGCHI) and computer graphics (SIGGRAPH), UIST brings together people from diverse areas including graphical & web user interfaces, tangible & ubiquitous computing, virtual & augmented reality, multimedia, new input & output devices, and CSCW. The intimate single track size make UIST an ideal opportunity to exchange research results and ideas.

**We will be issuing press passes allowing journalists to experience the UIST 2013 demo session.** The UIST 2013 demo session will feature 43 demonstrations of the very latest in the user interface technology field. This is an opportunity to get a first-hand experience of the user interface technologies that will be commonplace in five to ten years time.

**The contact person is Dr Per Ola Kristensson ([pok@st-andrews.ac.uk](mailto:pok@st-andrews.ac.uk)).**

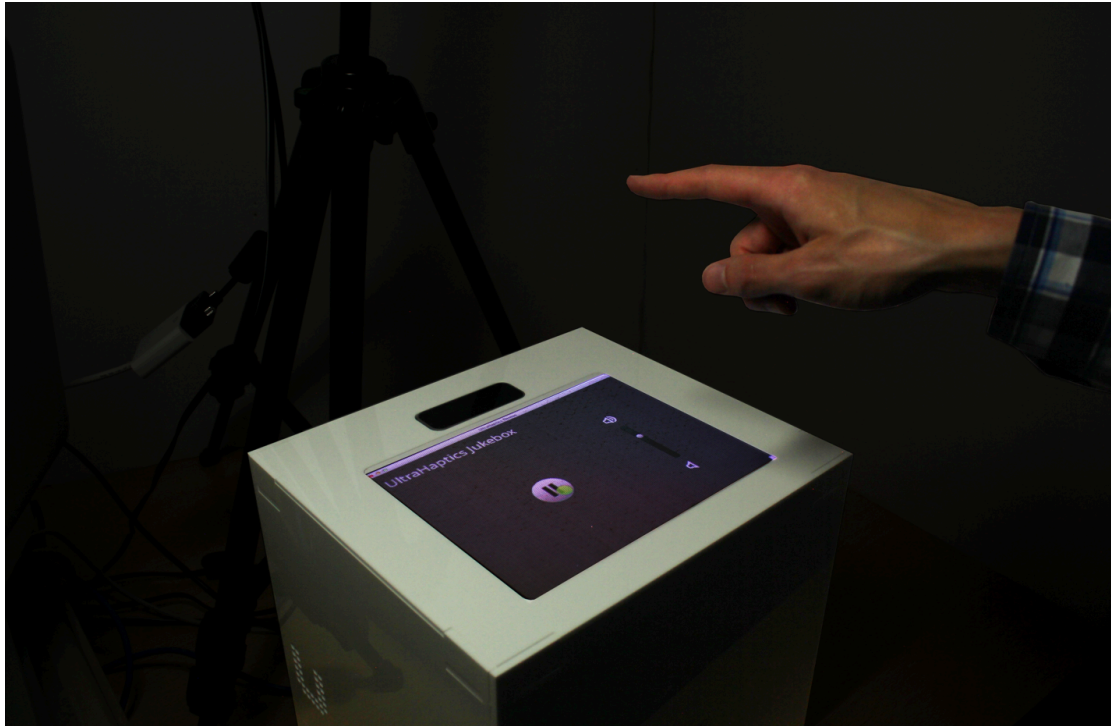
### A sample of technologies at the UIST 2013 demo session

A team from Disney Research and Carnegie Mellon University will be presenting a technology for designing curved display surfaces that can both display information and sense two dimensions of human touch. The technology is based on 3D-printed optics.

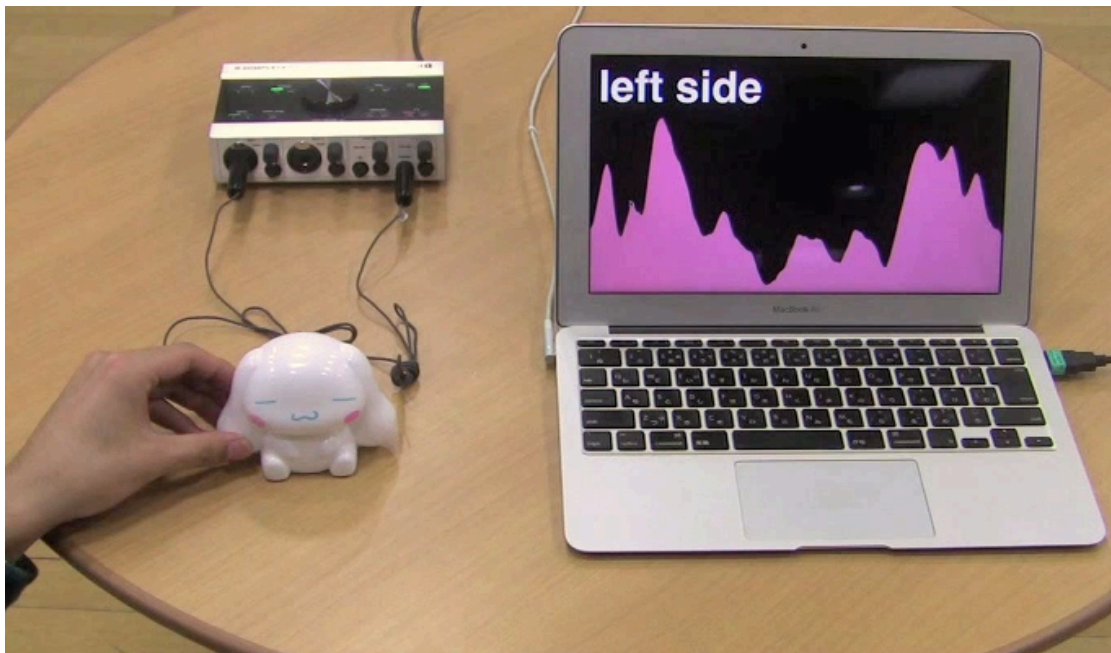


Researchers at the University of Bristol have invented a system that provides high-precision mid-air feedback to users. The system, called UltraHaptics, uses

ultrasound to project discrete points of haptic feedback through the display and directly on to users' unadorned hands.



A team at the University of Tsukuba in Japan have developed a method for enabling ordinary objects in our natural surroundings to become touch activated. Their system recognises a rich repertoire of various touch actions, including grasping them. The system works by attaching a vibration speaker and a piezo-electric microphone paired as a sensor on the object.



Researchers at the University of Lancaster have solved a major bottle-neck for eye-tracking interfaces: the need to calibrate the eye-tracker for it to properly track the user's gaze. Using their system, called Pursuit Calibration, eye-tracking calibration is performed automatically by people natural gazing at the display. This might help introduce eye-tracking interfaces into our daily lives.



A team at the MIT Media Lab have developed a compact, low-power 3D sensor for gestural interaction with upcoming wearable devices like the Google Glass and smart watches. Compared with state-of-the-art 3D sensors like time-of-flight cameras, Microsoft's Kinect and the Leap Motion Controller, Mime offers several key advantages for mobile applications: very small size, daylight insensitivity, and low power consumption.



**Full list of demonstrations at UIST 2013, hosted by the Human Computer Interaction group at the University of St Andrews:**

- PUCs Demo: Detecting Transparent, Passive Untouched Capacitive Widgets on Unmodified Multi-touch Displays
- The Nudging Technique: Input Method without Fine-Grained Pointing by Pushing a Segment
- QOOK: A New Physical-Virtual Coupling Experience for Active Reading
- Surface Haptic Interactions with a TPad Tablet
- PhysInk: Sketching Physical Behavior
- Foreign Manga Reader: Learn Grammar and Pronunciation while Reading Comics
- Inkjet-printed Conductive Patterns for Physical Manipulation of Audio Signals
- Multi-Touch Gesture Recognition by Single Photoreflector
- Flexkit: A Rapid Prototyping Platform for Flexible Displays
- FlexStroke: a jamming brush tip simulating multiple painting tools on digital platform
- BoardLab: PCB as an interface to EDA software
- Classified: An Augmented Ruler based on a Transparent Display for Real-time Interactions with Paper
- Demonstrations Accompanying Papers (Hall of Champions, Old Course Hotel)
- PneuUI: Pneumatically Actuated Soft Composite Materials for Shape Changing Interfaces
- Mime: Compact, Low Power 3D Gesture Sensing for Interaction with Head Mounted Displays
- Transmogrification: Casual Manipulation of Visualizations
- GIST: A Gestural Interface for Remote Nonvisual Spatial Perception
- AttribIt: Content Creation with Semantic Attributes
- dePEND: Augmented Handwriting System Using Ferromagnetism of a Ballpoint Pen
- Chorus: A Crowd-Powered Conversational Assistant
- Video Collections in Panoramic Contexts
- A Tongue Training System for Children with Down Syndrome
- Cobi: A Community-Informed Conference Scheduling Tool
- StickEar: Making Everyday Objects Respond to Sound
- Haptic Feedback Design for a Virtual Button Along Force-Displacement Curves
- Pursuit Calibration: Making Gaze Calibration Less Tedious and More Flexible
- The Drawing Assistant: Automated Drawing Guidance and Feedback from Photographs
- Touch & Activate: Adding Interactivity to Existing Objects using Active Acoustic Sensing
- UltraHaptics: Multi-Point Mid-Air Haptic Feedback for Touch Surfaces

- MagGetz: Customizable Passive Tangible Controllers On and Around Conventional Mobile Devices
- PacCAM: Material Capture and Interactive 2D Packing for Efficient Material Usage on CNC Cutting Machines
- The Skweezee System: Enabling the design and the programming of squeeze interactions
- TextTearing: Opening White Space for Digital Ink Annotation
- Mirage: Exploring Interaction Modalities Using Off-Body Static Electric Field Sensing
- Traxion: A Tactile Interaction Device with Virtual Force Sensation
- Tactile Rendering of 3D Features on Touch Surfaces
- Paper Generators: Harvesting Energy from Touching, Rubbing and Sliding
- PAPILLON: Designing Curved Display Surfaces With Printed Optics

**Demonstrations will also be provided by the following sponsors**

- Technicolor
- Perceptive Pixel Division, Microsoft
- Wacom
- FXPAL
- Disney Research
- Smart Technologies
- Samsung
- 3M
- Multitouch