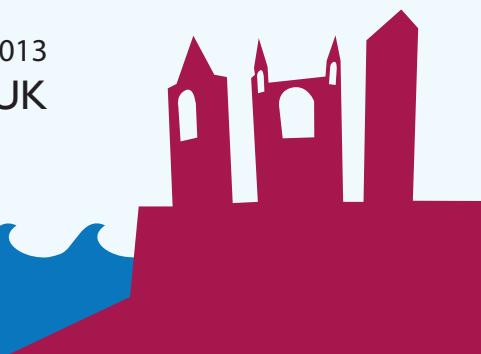


# UIST 2013

Conference Program

October 8-11, 2013  
St Andrews, UK



The 26<sup>th</sup> ACM Symposium on  
User Interface Software and Technology



Association for  
Computing Machinery



SIGCHI



ACMSIGGRAPH

# Sponsors

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Silver



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# Preface

It is our pleasure to welcome you to St Andrews in Scotland for the 26th Annual ACM Symposium on User Interface Software and Technology (Fàilte gu Alba) 2013 from October 8 to 11th. The conference is being hosted in St Andrews, the “home of golf” and the location of the third oldest University in the English speaking world. We thank the town, the University and all of our sponsors for making UIST 2013 possible.

We begin on Tuesday the 8th with an invitation only doctoral symposium. In the evening we have our opening reception for UIST attendees, compliments of the University, in Lower College Hall. You can find a map for this and all our venues in this programme. The paper programme begins on Wednesday the 9th in Younger Hall with a keynote session. UIST 2013 is co-located with ITS 2013 whose best paper and best note will be presented on the morning of the 9th for the delegates of both conferences to attend. You can find the programme for ITS at the back of this booklet.

Coffee breaks and lunches are served in Lower College Hall on Wednesday, Thursday and Friday. On Wednesday evening the UIST demo session and reception is held in the Old Course Hotel. On Thursday the 10th, during the coffee breaks, poster sessions begin in Lower and Upper College Halls (LCH/UCH). In the evening the student innovation contest is followed by the conference banquet in the Kinkell Byre. Paper presentations conclude on Friday the 11th in Younger Hall as do the poster sessions in Lower College Hall. Please note, bus transfers are provided to and from the Old Course Hotel (for those who prefer not to walk) and to and from the Kinkell Byre (for everyone).







We hope you enjoy all aspects of the UIST 2013 programme, and that you get to enjoy your time in Scotland. *Fàilte gu Alba.*







Miguel Nacenta  
*UIST Local Chair*

Shahram Izadi  
*UIST General Chair*

Aaron Quigley  
*UIST General Chair*

# Schedule Overview

	08:00	09:00	10:00	11:00	12:00	13:00	14:00
Tuesday, October 8	Doctoral Symposium (pg. 7)						
Wednesday, October 9	Best Paper & Best Note	Welcome	Keynote		Hardware	 (Provided)	Mob
Thursday, October 10		Crowd & Creativity			Sensing		 (Provided)
				Posters (pp. 23-24)			
Friday, October 11		Applications & Games			Tangible & Fabrication		 (Provided)
				Posters (pp. 23-24)			

00	15:00	16:00	17:00	18:00	19:00	20:00	21:00
				Early Registration (Lower College Hall)			
				Welcome Reception (Lower College Hall)			
le		Visualization and Video		 or 	Demonstrations (pp. 19-22)		
Vision		GUI					
		Posters (pp. 23-24)			Student Innovation Contest	Conference Banquet	
Development		Haptics	Town Hall				
	Posters (pp. 23-24)						

# Organizing Committee



Shahram Izadi  
*Microsoft Research, UK*  
*UIST General Chair*



Aaron Quigley  
*University of St Andrews*  
*UIST General Chair*



Miguel Nacenta  
*University of St Andrews*  
*UIST Local Chair*



Takeo Igarashi  
*The University of Tokyo, Japan*  
*Program Chair*



Ivan Poupyrev  
*Disney Research, USA*  
*Program Chair*

---

## Doctoral Symposium

Patrick Baudisch  
Steven K. Feiner  
Sriram Subramanian  
Celine Latulipe

## Poster Chairs

Mira Dontcheva  
Daniel Avrahami

## Proceedings Chairs

Julie R. Williamson  
Pedro Lopes

## Student Innovation Contest Chairs

David Kim  
Nicolai Marquardt  
Gabriel Reyes

## Demo Chairs

T. Scott Saponas  
Per Ola Kristensson

## Registration Chairs

Merve Keles  
Jakub Dostal

## Keynote Chair

Otmar Hilliges

## Social Media Chair

Aaron Genest

## Sponsorship Chair

Daniel Wigdor

## Student Volunteer Chairs

Eve Hoggan  
Uta Hinrichs

## Web Chair

Jim Young

## Mobile Chairs

Eiji Hayashi  
Stephen Oney  
Jason Wiese

## Publicity Chairs


Paul André  
Jun Kato

## PC Meeting Coordination

Chris Harrison

# Tuesday, October 8

## 08:00-17:00 Doctoral Symposium (by Invitation)

 Younger Hall

**Pixel-Based Reverse Engineering of Graphical Interface Structure**  
Morgan Dixon

**Augmenting the Input Space of Portable Displays Using Add-On Hall-Sensor Grid**  
Rong-Hao Liang

**Cross-Device Eye-based Interaction**  
Jayson Turner

**Enabling an Ecosystem of Personal Behavioral Data**  
Jason Wiese

**Exploring Back of Device Interaction**  
Mohammad Faizuddin M. Noor

**Sensor Design and Interaction Techniques for Gestural Input to Smart Glasses and Mobile Devices**  
Andrea Colaco

**Identifying Emergent Behaviours from Longitudinal Web Use**  
Aitor Apaolaza

**Integrated Visual Representations for Programming with Real-world Input and Output**  
Jun Kato

## 18:00-20:00 Registration & Welcome Reception

 Lower College Hall

**08:30-09:05 ITS Best Paper and Best Note**

📍 Younger Hall

**09:05-09:20 UIST Welcome and Introduction**

📍 Younger Hall

**09:20-10:20 Keynote**

📍 Younger Hall

**Humans and the coming machine revolution**

Prof. Raffaello D'Andrea, ETH Zurich

**10:20-10:50 Coffee Break**

📍 Lower College Hall

**10:50-12:15 Hardware**

*Chair: Jun Rekimoto, University of Tokyo*

📍 Younger Hall

**Lumitrack: Low Cost, High Precision and High Speed Tracking with Projected m-Sequences**

Robert Xiao, Chris Harrison, Karl Willis, Ivan Poupyrev, Scott Hudson

**PneUI: Pneumatically Actuated Soft Composite Materials for Shape Changing Interfaces**

Lining Yao, Ryuma Niiyama, Jifei Ou, Sean Follmer, Clark Della Silva, Hiroshi Ishii

**Paper Generators: Harvesting Energy from Touching, Rubbing and Sliding**

Mustafa Emre Karagozler, Ivan Poupyrev, Gary K. Fedder, Yuri Suzuki

**Touch & Activate: Adding Interactivity to Existing Objects using Active Acoustic Sensing**

Makoto Ono, Buntarou Shizuki, Jiro Tanaka

**Fiberio: A Touchscreen that Senses Fingerprints**

Christian Holz, Patrick Baudisch



**12:15-14:00 Lunch** (Provided)

📍 Lower and Upper College Hall

**14:00-15:40 Mobile**

*Chair: Nicolai Marquardt, University College London*

📍 Younger Hall

**Bayesian Touch: A Statistical Criterion of Target Selection with Finger Touch**

Xiaojun Bi, Shumin Zha

**Touch Scrolling Transfer Functions**

Philip Quinn, Sylvain Malacria, Andy Cockburn

**Controlling Widgets with one Power-Up Button**

Daniel Spelmezan, Caroline Appert, Olivier Chapuis, Emmanuel Pietriga

**Improving Structured Data Entry on Mobile Devices**

Kerry Shih-Ping Chang, Brad A Myers, Gene M Cahill, Soumya Simanta, Edwin Morris, Grace Lewis

**DigiTaps: Eyes-Free Number Entry on Touchscreens with Minimal Audio Feedback**

Shiri Azenkot, Cynthia L. Bennett, Richard E. Ladner

**Haptic Feedback Design for a Virtual Button Along Force-Displacement Curves**

Sunjun Kim, Geehyuk Lee



## 15:40-16:10 Coffee Break

📍 Lower College Hall

## 16:10-17:50 Visualization & Video

*Chair: George Fitzmaurice, Autodesk*

📍 Younger Hall

### **Transmogrification: Causal Manipulation of Visualizations**

John Brosz, Miguel Nacenta, Richard Pusch, Sheelagh Carpendale, Christophe Hurter

### **TextTearing: Opening White Space for Digital Ink Annotation**

Dongwook Yoon, Nicholas Chen, Francois Guimbretiere

### **Content-Based Tools for Editing Audio Stories**

Steve Rubin, Floraine Berthouzoz, Gautham J. Mysore, Wilmot Li, Maneesh Agrawala

### **Panopticon: A Parallel Video Overview System**

Dan Jackson, James Nicholson, Gerrit Stoeckigt, Rebecca Wrobel, Anja Thieme, Patrick Olivier

### **Video Collections in Panoramic Contexts**

James Tompkin, Fabrizio Pece, Rajvi Shah, Shahram Izadi, Jan Kautz, Christian Theobalt

### **DemoCut: Generating Concise Instructional Videos for Physical Demonstrations**

Pei-Yu Chi, Joyce Liu, Jason Linder, Mira Dontcheva, Wilmot Li, Bjorn Hartmann

## 18:00 Transfer to Old Course Hotel

*Details to be advised*

## 19:00-22:00 Demonstrations

📍 Hall of Champions, Old Course Hotel, St Andrews

*See pages 19-22 for listings*

## 09:00-10:40 Crowd & Creativity

Chair: Björn Hartmann, UC Berkley

📍 Younger Hall

### **Chorus: A Crowd-Powered Conversational Assistant**

Walter S Lasecki, Rachel Wesley, Jeffrey Nichols, Anand Kulkarni,  
James F Allen, Jeffrey P Bigham

### **CrowdLearner: Rapidly Creating Mobile Recognizers Using Crowdsourcing**

Shahriyar Amini, Yang Li

### **Cobi: A Community-Informed Conference Scheduling Tool**

Juho Kim, Haoqi Zhang, Paul Andre, Lydia B. Chilton, Wendy Mackay,  
Michel Beaudouin-Lafon, Robert C. Miller, Steven P. Dow

### **The Drawing Assistant: Automated Drawing Guidance and Feed- back from Photographs**

Emmanuel Iarussi, Adrien Bousseau, Theophanis Tsandilas

### **Attriblt: Content Creation with Semantic Attributes**

Siddhartha Chaudhuri, Evangelos Kalogerakis, Stephen Giguere,  
Thomas Funkhouser

### **dePEND: Augmented Handwriting System Using Ferromagnetism of a Ballpoint Pen**

Junichi Yamaoka, Yasuaki Kakehi



## 10:40-11:20 Coffee Break (Poster Session)

📍 Lower and Upper College Hall

*See pages 23-24 for listing*

## 11:20-13:00 Sensing

*Chair: Chris Harrison, Carnegie Mellon University*

📍 Younger Hall

### **Mirage: Exploring Interaction Modalities Using Off-Body Static Electric Field Sensing**

Adiyan Mujibiya, Jun Rekimoto

### **StickEar: Making Everyday Objects Respond to Sound**

Kian Peen Yeo, Suranga Nanayakkara, Shanaka Ransiri

### **Mime: Compact, Low Power 3D Gesture Sensing for Interaction with Head Mounted Displays**

Andrea Colaco, Ahmed Kirmani, Nan-Wei Gong, Hye Soo Yang, Chris Schmandt, Vivek Goyal

### **uTrack: 3D Input Using Two Magnetic Sensors**

Ke-Yu Chen, Kent Lyons, Sean White, Shwetak Patel

### **A Cuttable Multi-touch Sensor**

Simon Olberding, Nan-Wei Gong, John Tiab, Joseph Paradiso, Jurgen Steimle

### **FingerPad: Private and Subtle Interaction Using Fingertips**

Liwei Chan, Rong-Hao Liang, Ming-Chang Tsai, Kai-Yin Cheng, Chao-Huai Su, Mike Chen, Wen-Huang Cheng, Bing-Yu Chen

## 13:00-14:30 Lunch (Provided)

📍 Lower and Upper College Hall

## 14:30-16:10 Vision

Chair:

 Younger Hall

### **Pursuit Calibration: Making Gaze Calibration Less Tedious and More Flexible**

Ken Pfeuffer, Melodie Vidal, Jayson Turner, Andreas Bulling, Hans Gellersen

### **Gaze Locking: Passive Eye Contact Detection for Human Object Interaction**

Brian A Smith, Qi Yin, Steven K Feiner, Shree K Nayar

### **Open Project: A Lightweight Framework for Remote Sharing of Mobile Applications**

Matei Negulescu, Yang Li

### **Surround-See: Enabling Peripheral Vision on Smartphones during Active Use**

Xing-Dong Yang, Khalad Hasan, Neil Bruce, Pourang Irani

### **GIST: a Gestural Interface for Remote Nonvisual Spatial Perception**

Vinitha Khambadkar, Eelke Folmer

### **YouMove: Enhancing Movement Training with an Augmented Reality Mirror**

Fraser Anderson, Tovi Grossman, Justin Matejka, George Fitzmaurice

## 16:10-16:50 Coffee Break (Poster Session)

 Lower and Upper College Hall

*See pages 23-24 for listing*

## 16:50-17:50 GUI

*Chair: Wilmot Li, Adobe*

📍 Younger Hall

### **Skillometers: Reflective Widgets that Motivate and Help Users to Improve Performance**

Sylvain Malacria, Joey Scarr, Andy Cockburn, Carl Gutwin, Tovi Grossman

### **MenuOptimizer: Interactive Optimization of Menu Systems**

Gilles Bailly, Antti Oulasvirta, Timo Kotzing, Sabrina Hoppe

### **The Auckland Layout Editor: An Improved GUI Layout Specification Process**

Clemens Zeidler, Christof Lutteroth, Wolfgang Sturzlinger, Gerald Weber

### **SeeSS: Seeing What I Broke -- Visualizing Change Impact of Cascading Style Sheets (CSS)**

Hsiang-Sheng Liang, Kuan-Hung Kuo, Po-Wei Lee, Yu-Chien Chan, Yu-Chin Lin, Mike Y. Chen

## 18:00 Transfer to Kinkell Byre, St Andrews

*Details to be advised*

## 18:30-20:00 Student Innovation Contest

📍 Kinkell Byre, St Andrews

## 20:00-22:00 Conference Banquet

📍 Kinkell Byre, St Andrews

## 09:00-10:40 Applications & Games

Chair: *Xiaojun Bi, Google*

📍 Younger Hall

### **Capturing On Site Laser Annotations with Smartphones to Document Construction Work**

Jorg Schweitzer, Ralf Dorner

### **Crowd-scale Interactive Formal Reasoning and Analytics**

Ethan Fast, Colleen Lee, Alex Aiken, Michael S Bernstein, Daphne Koller, Eric Smith

### **A Tongue Training System for Children with Down Syndrome**

Masato Miyauchi, Takashi Kimura, Takuya Nojima

### **A Mixed-Initiative Tool for Designing Level Progressions in Games**

Eric Butler, Adam Smith, Yun-En Liu, Zoran Popovic

### **BodyAvatar: Creating Freeform 3D Avatars using First-Person Body Gestures**

Yupeng Zhang, Teng Han, Zhimin Ren, Nobuyuki Umetani, Xin Tong, Yang Liu, Takaaki Shiratori, Xiang Cao

### **ViziCal: Energy Expenditure Prediction for Playing Exergames**

Miran Kim, Jeff Angermann, George Bebis, Eelke Folmer

### **Imaginary Reality Gaming: Ball Games Without a Ball**

Patrick Baudisch, Henning Pohl, Stefanie Reinicke, Emilia Wittmers, Patrick Luhne, Marius Knaust, Sven Kohler, Patrick Schmidt, Christian Holz



## 10:40-11:20 Coffee Break (Poster Session)

📍 Lower and Upper College Hall

*See pages 23-24 for listing*

## 11:20-13:00 Tangible & Fabrication

*Chair: Patrick Baudisch, Hasso Plattner Institute*

📍 Younger Hall

### **MagGetz: Customizable Passive Tangible Controllers On and Around Conventional Mobile Devices**

Sungjae Hwang, Myungwook Ahn, Kwangyun Wohn

### **inForm: Dynamic Physical Affordances and Constraints**

Sean Follmer, Daniel Leithinger, Alex Olwal, Akimitsu Hogge, Hiroshi Ishii

### **Traxion: A Tactile Interaction Device with Virtual Force Sensation**

Jun Rekimoto

### **Human-computer interaction for hybrid carving**

Amit Zoran, Roy Shilkrot, Joseph Paradiso

### **PacCAM: Material Capture and Interactive 2D Packing for Efficient Material Usage on CNC Cutting Machines**

Daniel Saakes, Thomas Cambazard, Jun Mitani, Takeo Igarashi

### **Sauron : Embedded Single-Camera Sensing of Printed Physical User Interfaces**

Valkyrie Savage, Colin Chang, Bjorn Hartmann

### **PAPILLON: Designing Curved Display Surfaces With Printed Optics**

Eric Brockmeyer, Ivan Poupyrev, Scott Hudson

## 13:00-14:30 Lunch (Provided)

📍 Lower and Upper College Hall



## 14:30-15:40 Development

*Chair: Wolfgang Stuerzlinger, York University*

📍 Younger Hall

### **The Dog Programming Language**

Salman Ahmad, Sepandar Kamvar

### **Interactive Record/Replay for Web Application Debugging**

Brian Burg, Richard Bailey, Andrew Ko, Michael Ernst

### **Authoring Multi-Stage Code Examples with Editable Code Histories**

Shiry Ginosar, Luis Fernando De Pombo, Maneesh Agrawala, Bjorn Hartmann

### **A Colorful Approach to Text Processing by Example**

Kuat Yessenov, Shubham Tulsiani, Aditya Menon, Rob Miller, Sumit Gulwani, Butler Lampson, Adam Kalai

## 15:40-16:10 Coffee Break (Poster Session)

📍 Lower and Upper College Hall

*See pages 23-24 for listing*



## 16:10-17:25 Haptics

*Chair: Sriram Subramanian, University of Bristol*

📍 Younger Hall

### **UltraHaptics: Multi-Point Mid-Air Haptic Feedback for Touch Surfaces**

Thomas Carter, Sue Ann Seah, Benjamin Long, Bruce Drinkwater, Sriram Subramanian

### **Good Vibrations: An Evaluation of Vibrotactile Impedance Matching for Low Power Wearable Applications**

Jack Lindsay, Iris Jiang, Eric Larson, Richard Adams, Shwetak Patel, Blake Hannaford

### **The Skweezee System: Enabling the design and the programming of squeeze interactions**

Karen Vanderloock, Vero Vanden Abeele, Johan A.K. Suykens, Luc Geurts

### **Tactile Rendering of 3D Features on Touch Surfaces**

Seung-Chan Kim, Ali Israr, Ivan Poupyrev

### **SenSkin: Adapting Skin as a Soft Interface**

Masa Ogata, Yuta Sugiura, Yasutoshi Makino, Masahiko Inami, Michita Imai

## 17:25-17:55 Town Hall

📍 Younger Hall

# Demonstrations (October 9)

## 19:00-22:00 Demonstrations

📍 Hall of Champions, Old Course Hotel

### **PUCs Demo: Detecting Transparent, Passive Untouched Capacitive Widgets on Unmodified Multi-touch Displays**

Simon Voelker, Kosuke Nakajima, Christian Thoresen, Yuichi Itoh, Kjell Øvergård, Jan Borchers

### **The Nudging Technique: Input Method without Fine-Grained Pointing by Pushing a Segment**

Shota Yamanaka, Homei Miyashita

### **QOOK: A New Physical-Virtual Coupling Experience for Active Reading**

Yuhang Zhao, Yongqiang Qin, Yang Liu, Siqi Liu, Yuanchun Shi

### **Surface Haptic Interactions with a TPad Tablet**

Joseph Mullenbach, Craig Shultz, Anne Marie Piper, Michael Peshkin, J. Edward Colgate

### **PhysInk: Sketching Physical Behavior**

Jeremy Scott, Randall Davis

### **Foreign Manga Reader: Learn Grammar and Pronunciation while Reading Comics**

Geza Kovacs, Rob Miller

### **Inkjet-printed Conductive Patterns for Physical Manipulation of Audio Signals**

Nan-Wei Gong, Amit Zoran, Joseph Paradiso

### **Multi-Touch Gesture Recognition by Single Photoreflector**

Hiroyuki Manabe

### **Flexkit: A Rapid Prototyping Platform for Flexible Displays**

David Holman, Jesse Burstyn, Ryan Brotman, Audrey Younkin, Roel Vertegaal

### **FlexStroke: a jamming brush tip simulating multiple painting tools on digital platform**

Xin Liu, Haijun Xia, Jiawei Gu

### **BoardLab: PCB as an interface to EDA software**

Pragun Goyal, Harshit Agrawal, Joseph Paradiso, Pattie Maes

### **Classified: An Augmented Ruler based on a Transparent Display for Real-time Interactions with Paper**

Anirudh Sharma, Lirong Liu, Pattie Maes

# Demonstrations (October 9)

## 19:00-22:00 Demonstrations with Papers

📍 Hall of Champions, Old Course Hotel

### **PneUI: Pneumatically Actuated Soft Composite Materials for Shape Changing Interfaces**

Lining Yao, Ryuma Niiyama, Jifei Ou, Sean Follmer, Clark Della Silva, Hiroshi Ishii

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Juho Kim, Haoqi Zhang, Paul André, Lydia B. Chilton, Wendy Mackay, Michel Beaudouin-Lafon, Robert C. Miller, Steven P. Dow

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Karen Vanderloock, Vero Vanden Abeele, Johan A.K. Suykens, Luc Geurts

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### **Traxion: A Tactile Interaction Device with Virtual Force Sensation**

Jun Rekimoto

### **Tactile Rendering of 3D Features on Touch Surfaces**

Seung-Chan Kim, Ali Israr, Ivan Poupyrev

# Demonstrations (October 9)

## 19:00-22:00 Sponsored Demonstrations

📍 Hall of Champions, Old Course Hotel

### Technicolor

Danieau Fabien, Fabien.Danieau@technicolor.com



### Perceptive Pixel Division, Microsoft

Jeff Han, jhan@microsoft.com



### Wacom

Stephanie Connor, stephanie.connor@wacom.com



### FXPAL

Sven Kratz, kratz@fxpal.com



### Disney Research

Virginia Perry Smith, gini@disneyresearch.com



### Smart Technologies

Edward Tse, EdwardTse@smarttech.com



### Samsung

Taik Heon Rhee (이택현), taikheon.rhee@samsung.com



### 3M

Paolo Pedrazzoli, ppedrazzoli1@mmm.com



# Posters (October 10-11)

10th: 10:40-11:20 & 16:10-16:50 Coffee Break

11th: 10:40-11:20 & 15:40-16:10 Coffee Break

📍 Lower and Upper College Hall

A Cluster Information Navigate Method by Gaze Tracking

NailSense: Fingertip Force as a New Input Modality

Multi-Perspective Multi-Layer Interaction on Mobile Device

A Touchless Passive Infrared Gesture Sensor

DDMixer2.5D: drag and drop to mix 2.5D video objects

Shape Changing Device for Notification

BitWear: A Platform for Small, Connected, Interactive Devices

Hanzi Lamp: An Intelligent Guide Interface for Chinese Character Learning

Detecting Student Frustration based on Handwriting Behavior

eyeCan: Affordable and Versatile Gaze Interaction

Augmenting Braille Input through Multitouch Feedback

H-Studio: An Authoring Tool for Adding Haptic and Motion Effects to Audiovisual Content

WebNexter: Dynamic Guided Tours for Screen Readers

An assembly of soft actuators for an organic user interface



# Posters (October 10-11)

10th: 10:40-11:20 & 16:10-16:50 Coffee Break

11th: 10:40-11:20 & 15:40-16:10 Coffee Break

📍 Lower and Upper College Hall

*(continued)*

Crowdboard: An Augmented Whiteboard to Support Large-Scale Co-Design

Ta-Tap: Consecutive Distant Tap Operations for One-handed Touch Screen Use

Visimu: A Game for Music Color Label Collection

User Created Tangible Controls Using ForceForm: a Dynamically Deformable Interactive Surface

Asymmetric Cores for Low Power User Interface Systems

Visualizing Web Browsing History with Barcode Chart

Wheels in Motion: Inertia Sensing in Roller Derby

LivingClay : Particle Actuation to Control Display Volume and Stiffness

Brainstorm, Define, Prototype: Timing Constraints to Balance Appropriate and Novel Design

FingerSkate: Making Multi-Touch Operations Less Constrained and More Continuous

Obake : interactions with a 2.5D elastic display

BackTap: Robust Four-Point Tapping on the Back of an Off-the-shelf Smartphone

Haptic Props: Semi-actuated tangible props for haptic interaction on the surface



# Notes

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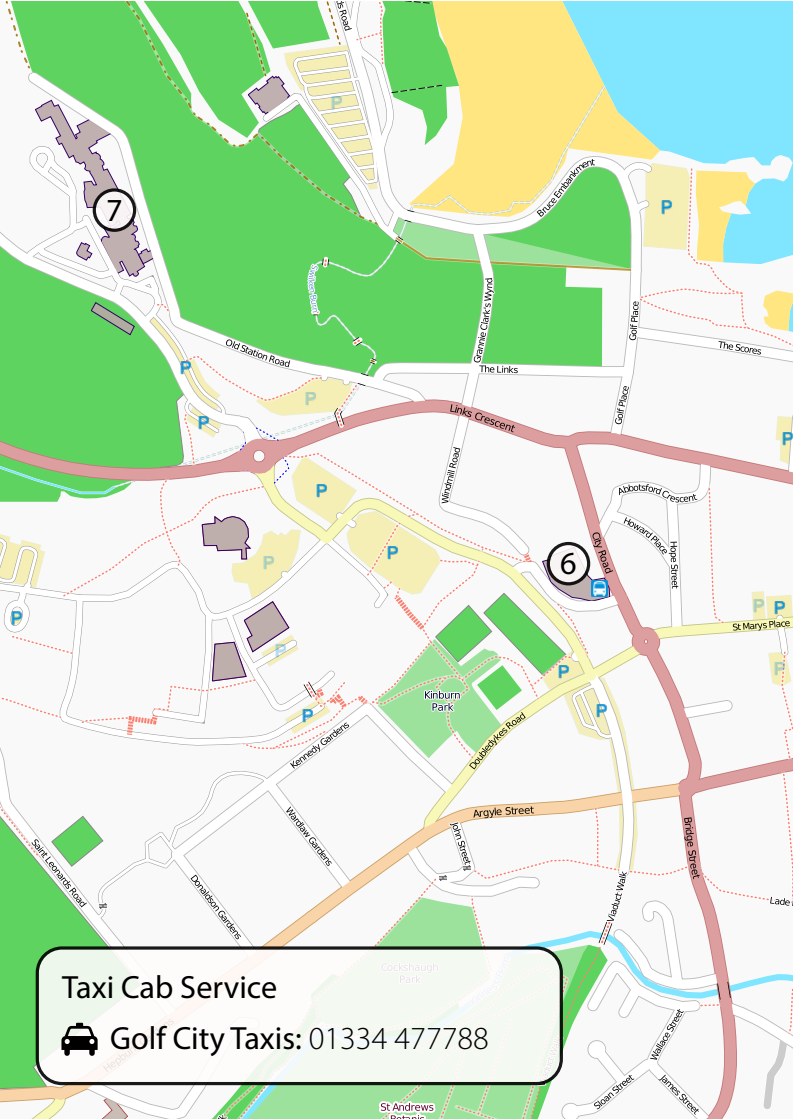
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Taxi Cab Service



Golf City Taxis: 01334 477788

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|------------------------------|--------------------------|
| ① Younger Hall               | ⑤ Arts Building          |
| ② MUSA (University Museum)   | ⑥ Bus Station            |
| ③ Lower & Upper College Hall | ⑦ Old Course Hotel       |
| ④ St Salvator's Chapel       | Ⓢ Bank (ATM, Cash Point) |

Map © OpenStreetMap contributors



# Useful Information

ITS/UST Student Volunteer Desk Contact  
☎ +44 (0) 7988 543386

Emergency Services  
☎ 999

Local Hospital: Serious Injuries  
☎ Ninewells Hospital  
Dundee,  
DD1 9SY  
☎ 01382 660111

Local Hospital: Minor Injuries  
☎ St Andrews Community Hospital  
Largo Road,  
St Andrews  
KY16 8AR  
☎ 01334 465683

Taxi Cab Services  
Club Cars  
☎ 01334 479900

Golf City Taxis  
☎ 01334 477788

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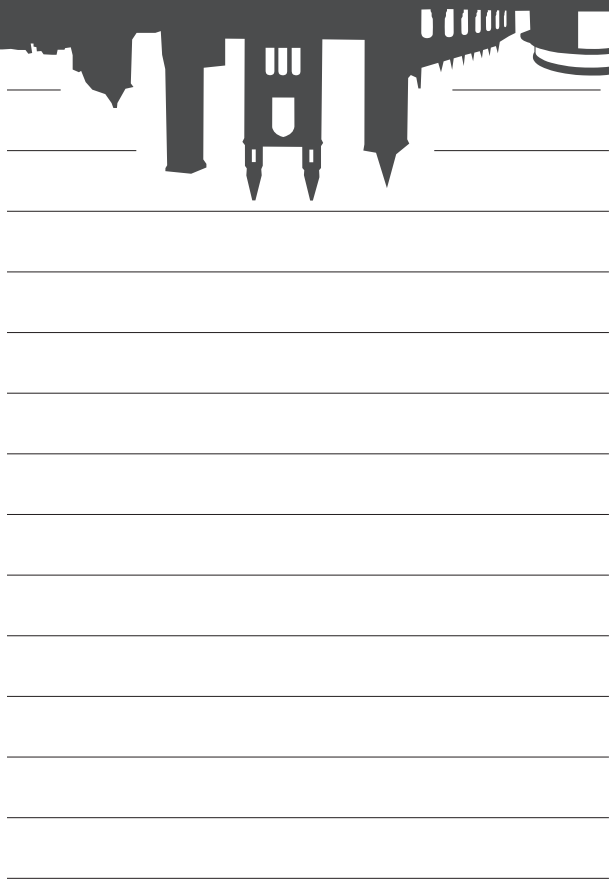
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*(continued)*

Music Mixing Surface

Augmenting Tandem Language Learning with the TandemTable

CubIT: Large-scale Multi-user Presentation and Collaboration

TouchModifer: Enriched Multi-Touch Gestures for Tablet Browsers

The Effect of Active Encouragements of Situated Public Display  
with Interactive Quiz





10:15-11:15 Coffee Break

15:00-16:00 Coffee Break

☉ Lower and Upper College Hall

*(continued)*

Dinner Metaphor Interface: Operating Your Computers with a Knife and Fork

Comparing Visual Feedback Techniques for Object Transfer between Private and Shared Surfaces

Investigating Attraction and Engagement of Animation on Large Interactive Walls in Public Settings

How to choose element sizes for novel interactive systems

Exploring the Effect of Display Size on Pointing Performance

Sidelock: Authentication on Mobile Device Sides

Adding Context to Multi-touch Region Selections

SLFiducials: 6DOF markers for tabletop interaction

Designing for Expert Users on a Large Non-standard Display

Natural Interaction for Card Games on Multiple Devices

An Environment for Fast Development of Tabletop Applications

Workload on Your Fingertips: The Influence of Workload on

Touch-based Drag and Drop

Inspirations from Honey Bees: Exploring Movement Measures for Dynamic Whole Body Gestures

Comparing Eye and Gesture Pointing to Drag Items on Large

Screens

LampTop: Touch Detection for a Projector-Camera System Based on Shape Classification

10:15-11:15 Coffee Break

15:00-16:00 Coffee Break

● Lower and Upper College Hall

Forearm Menu: Using Forearm as Menu Widget on Tablettop System

Collaborative Task Assignment on Tablettop Computer

An Assistive Tablettop Keyboard for Stroke Rehabilitation

Examining Interactive Surfaces for Maritime Operations

Navigating and Annotating 3D Geological Outcrops Through

Multi-touch Interaction

PeriTop: Extending Back-Projected Tabletops with Top-Projected Peripheral Displays

Improving Awareness of Automated Actions using an Interactive Event Timeline

Beauty Technology as an Interactive Computing Platform

Exploring Modeling Language for Multi-Touch Systems using

Petri Nets

Setting of Document Importance Based on Analysis of Users'

Usual Working

Eye-Tracking Volume Simulation Method to Configure Hardware Settings for Tangible and Multi-User Tablettop Interaction

10:15-11:15 Coffee Break

12:45-14:00 Lunch

15:30-16:30 Coffee Break

☉ Lower College Hall

**The SimMed Experience: Medical Education on Interactive Tabletops**

Ulrich von Zadow, Sandra Buron, Kai Sostmann, Raimund Dachselt

**Introducing Kupla UI: A Generic Interactive Wall User Interface Based on**

**Physics Modeled Spherical Content Widgets**

Kai Kuikkaniemi, Max Vilkkii, Jouni Ojala, Matti Nelimarkka, Giulio Jacucci

**Prototype of Operator Interface for Monitoring and Controlling in the**

**Mobile Control Room**

Hyun-Chul Lee, Gilbok Lee

**PhoneCog: A Device Authentication Method on Interactive Tabletops**

**Using Color Sequence Pattern Recognition**

Gilbok Lee, Kyle Koh, Gyunbok Lee, Guntae Park

**The fun.tastisch. Project – Interactive Tabletops in Neuro-Rehabilitation**

Wiljam Augstein, Thomas Neunayr, Renate Ruckser-Scherb, Isabel Karhuhber,

Josef Altmann

**Positioning Portals with Peripheral NFC Tags to Embody Trans-Surface**

**Interaction**

Shenfeng Fei, Andrew Webb, Android Kerne, Yin Qu, Ajit Jain

**PointPose Demo: Using a Depth Camera for Finger Pose Estimation on**

**Touch-Based Mobile Devices**

Sven Kratz, Patrick Chiu, Maribeth Back

**PUCs Demo: Detecting Transparent, Passive Untouched Capacitive Widgets**

Simon Voelker, Kosuke Nakajima, Christian Thoresen, Yuichi Itoh,

Kjell Øvergård, Jan Borchers

**SWINGNAGE: Gesture-based Mobile Interactions on Distant Public Displays**

Tokuo Yamaguchi, Hiroyuki Fukushima, Shigeru Tatsuzawa, Masato Nonaka,

Kazuki Takashima, Yoshifumi Kitamura

# Doctoral Symposium (Oct 6)

09:00-18:00 Doctoral Symposium

Arts Building 

Producing Live Participation with Big Screen: Case Study of Constructive Design of Kupla UI  
Kai Kuikkanen!


The Immersive Museum  
Gido Hakvoort

Beauty Technology: Muscle based Computing Interaction  
Katia Vega


Achieving Soft and Directly Deformable Interaction on Tablet  
Interactive Surfaces  
Jessica Tsimmeris




# Tutorials & Workshops (Oct 6)

09:00-18:00 Workshop  Arts Building


Collaboration meets Interactive Surfaces: Walls, Tables, Tablets and Phones  
Pedro Campos, Alfredo Ferreira, Andrés Lucero

09:00-18:00 Tutorial & Workshop  Arts Building


Interactive Surfaces for Interaction with Stereoscopic 3D (ISIS3D)  
Florian Daiber, Bruno Rodrigues De Arajo, Frank Steinicke, Wolfgang Stuerzlinger

09:00-12:00 Workshop  Arts Building

Visual Adaptation of Interfaces  
Jakub Dostal, Miguel Nacenta, Roman Rädle, Harald Reiterer, Sophie Stellmach

13:30-15:30 Tutorial  Arts Building

Proxemic Interactions with and around Digital Surfaces  
Nicolai Marquardt

16:00-18:00 Tutorial  Arts Building

Sketching User Experiences: Stories, Strategies, Surfaces  
Nicolai Marquardt

**08:30-09:05 Best Paper and Best Note**

*Chairs: Mike Horn and Miguel Nacenta, Northwestern University, US, and*

*University of St Andrews, UK*

📍 Younger Hall

**Penbook: Bringing Pen+Paper Interaction to a Tablet Device to**

**Facilitate Paper-Based Workflows in the Hospital Domain**

Christian Winkler, Julian Seifert, Christian Reinartz, Pascal Kraemer

and Enrico Rukzio

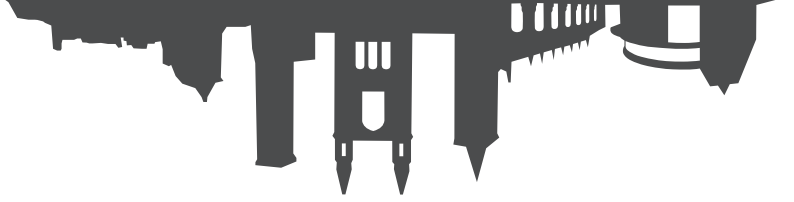
**TouchMover: Actuated 3D Touchscreen with Haptic Feedback**

Mike Sinclair, Michel Pahud and Hrvoye Benko

**09:05-10:20 ITS Capstone/UIST Keynote and Welcome**

📍 Younger Hall

**Humans and the coming machine revolution**  
Prof. Raffaello D'Andrea, ETH Zurich



16:30-18:00 Latency and Occlusion + CSCW

*Chair: Andy Wilson, Microsoft Research, US*

Younger Hall

Two Touch System Latency Estimators: High Accuracy and Low Overhead

François Bérard and Renaud Blanch

A Case Study of Object and Occlusion Management on the elab-Bench, a Mixed Physical/Digital Tabletop

Aurélien Tabard, Simon Gurn, Andreas Butz and Jakob Bardram

ObjectTop: Occlusion Awareness of Physical Objects on Interactive Tabletops

Mohammadreza Khalilibeigi, Jürgen Steimle, Jan Riemann, Niloofer Dezfili, Max Mühlhäuser and James Hollan

An Interactive Surface Solution to Support Collaborative Work Onboard Ships

Veronika Domova, Elna Vartiainen, Saad Azhar and Maria Ralph

Support for Collaborative Situation Analysis and Planning in Crisis Management Teams using Interactive Tabletops

Sebastian Doeweling, Mohammadreza Khalilibeigi, Benedikt Schmidt, Tarik Tahiri and Philipp Sowinski

18:00-18:30 ITS Town Hall Meeting

Younger Hall

## 14:00-15:30 Touch Fundamentals

*Chair: Luis Cabrera-Cordon, Microsoft, US*

☯ Younger Hall

**Deconstructing the Touch Experience**

Diane Watson, Mark Hancock, Regan Mandryk and Max Birk

**Arpegge: Learning multichord gestures vocabularies**

Emilien Ghomi, Stéphane Huot, Olivier Bau, Michel Beaudouin-Lafon

and Wendy Mackay

**Multi-Touch Pinch Gestures: Performance and Ergonomics**

Eve Hogan, Miguel A. Nacenta, Per Ola Kristensson, John Williamson,  
Antti Oulasvirta and Anu Lehtio

**PointPose: Finger Pose Estimation for Touch Input on Mobile Devices**

**using a Depth Sensor**

Sven Kratz, Patrick Chiu and Maribeth Back

**Towards User-Defined Multi-Touch Gestures for 3D Objects**

Sarah Buchanan, Charles Floyd IV, Joseph Laviola and William Holderness

## 15:30-16:30 Demos & Coffee Break

☯ Lower College Hall



## 11:15-12:45 Redefining Surfaces

*Chair: Mark Hancock, University of Waterloo, Canada*

☉ Younger Hall

**AquaTop Display: Interactive Water Surface for Viewing and Manipulating Information in a Bathroom**

Hideki Koike, Yoichi Takahashi and Yasushi Matoba

**TapTiles – LED-based floor interaction**

Nicholas Dalton

**ForceForm: A Dynamically Deformable Interactive Surface**

Jessica Timmeris, Colin Dedman, Michael Broughton and Tom Gedeon

**TransformTable: A Self-Actuated Shape-Changing Digital Table**

Kazuki Takashima, Naohiro Aida, Hitomi Yokoyama

and Yoshifumi Kitamura

**The Sound of Touch: On-body Touch and Gesture Sensing Based on**

**Transdermal Ultrasound Propagation**

Adiyen Mujibiyah, Xiang Cao, Desney Tan, Daniel Morris, Shwetak Patel

and Jun Rekimoto

## 12:45-14:00 Lunch (Buffet)

☉ Lower College Hall

08:30-17:30 Registration

☿ Younger Hall

09:00-10:20 Education and Training

*Chair: Frank Maurel, University of Calgary*

☿ Younger Hall

Extending tabletop application design to the classroom  
Ahmed Kharrufa, Roberto Martinez-Maldonado and Patrick Olivier

Making 3D Content Accessible for Teachers

Edward Tse and Min Xin

Activity Pad: Teaching tool combining tangible interaction and the affordances of paper

Mikko Pyykkönen, Jukka Riekkö, Marko Jurmu and Ivan Sánchez Millara

ORMIS: A Tabletop Interface for Simulation-Based Training

Christophe Bortolaso, Matthew Oskamp, Nick Graham and Doug Brown

10:15-11:15 Demos & Coffee Break

☿ Lower College Hall

*See page 18 for listings*

16:00-17:30 Tangibles

*Chair: Judy Kay, University of Sydney, Australia*

☛ Younger Hall

Instant User Interfaces: Repurposing Everyday Objects as Physical Input Devices

Christian Corsten, Ignacio Avellino, Max Möllers and Jan Borchers

A Multi-Touch Digital Desktop for Astrodynamics

Jamie Coram, Rob Iverson and Andrew Ackerman

The fun, fast, tisch. Project – A Novel Approach to Neuro-Rehabilitation Using an Interactive Multiuser Multitouch Tabletop

Miljam Augstein, Thomas Neunmayr, Renate Ruckser-Scherb, Isabel Karlsruher and Josef Altmann

Comparing Physical, Overlay, and Touch Screen Parameter Controls

Melanie Tory and Robert Kincaid

PUCs: Detecting Transparent, Passive Untouched Capacitive Widgets on Unmodified Multi-touch Displays

Simon Voelker, Kosuke Nakajima, Christian Thoresen, Yuichi Itoh, Kjell Øvergård and Jan Borchers

TempTouch: A Novel Touch Sensor Using Temperature Controllers For Surface Based Textile Displays

Roshan Peiris and Ryohei Nakatsu

17:30-17:45 Announcement of ITS 2014

☛ Younger Hall

18:40-19:20 Music at St Salvador's Chapel

☛ St Salvador's Chapel

Choristi Sanctiandree

19:30-22:00 ITS Banquet

☛ Lower College Hall

12:45-14:00 Lunch (Buffet)

☪ Lower College Hall

14:00-15:00 Pen and Touch

*Chair: Raimund Dachselt, University of Dresden, Germany*

☪ Younger Hall

Pen and Touch Gestural Environment for Multi-Document Editing on  
Interactive Desktops

Fabrice matulic and Moira Norrie

Perceptual Grouping: Selection Assistance for Digital Sketching

David Lindlbauer, Michael Haller, Mark Hancock, Stacey Scott

and Wolfgang Stuerzlinger

Automatic Annotation Placement for Interactive Maps

Daniel Kanelder, Michael Haller and Thomas Seifried

15:00-16:00 Posters & Coffee Break

☪ Lower College Hall

*See pages 19-21 for listings*

08:30-17:30 Registration

☿ Younger Hall

09:00-10:15 Keynote & Welcome Session

☿ Younger Hall

Jeff Han, Perceptive Pixel Founder and General Manager of the  
Perceptive Pixel Division at Microsoft

10:15-11:15 Posters & Coffee Break

☿ Lower College Hall

*See pages 19-21 for listings*

11:15-12:45 Surfaces in Context + Gestures & Body

*Chair: Stacey Scott, University of Waterloo, Canada*

☿ Younger Hall

**The Cube: A very large-scale interactive engagement space**

Markus Rittenbruch, Andrew Sorensen, Jared Donovan, Debra Polson,  
Michael Docherty and Jeff Jones

**AstroTouch: A Multi-Touch Digital Desktop for Astrodynamics**

Jamie Coram, Rob Iverson and Andrew Ackerman

**SkyHunter: A Multi-Surface Environment for Supporting Oil and Gas**

Exploration

Teddy Seyed, Mario Costa Sousa, Frank Maurer and Anthony Tang

**The Effect of Egocentric Body Movements on Users: Navigation  
Performance and Spatial Memory in Zoomable User Interfaces**

Roman Rädle, Hans-Christian Jetter, Simon Butscher and Harald Retterer

**Peripheral Array of Tangible NFC Tags: Positioning Portals for Embod-**

**ied Trans-Surface Interaction**

Shenfeng Fei, Andrew Webb, Andrius Kerne, Yin Qu and Ajit Jain

**Body Panning: A Movement-based Navigation Technique for Large**

**Interactive Surfaces**

Daniel Klínkhammer, Jan Ténie, Paula Erdős and Harald Retterer

# Sunday, October 6

09:00-18:00 Registration  
☪ Arts Building

09:00-18:00 Doctoral Symposium

☪ Arts Building

*See page 16 for listings*

09:00-10:30 Tutorials and Workshops

☪ Arts Building

*See page 17 for listings*

10:30-11:00 Coffee Break

☪ Arts Building

11:00-12:00 Tutorials and Workshops

☪ Arts Building

12:00-13:30 Lunch (Buffet)

☪ Arts Building

13:30-15:30 Tutorials and Workshops

☪ Arts Building

15:30-16:00 Coffee Break

☪ Arts Building

16:00-18:00 Tutorials and Workshops

☪ Arts Building

18:00-19:30 Registration

☪ Lower College Hall

18:00-19:30 ITS Welcome Drinks Reception

☪ Lower College Hall

# Organizing Committee



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University of Helsinki  
ITS General Chair



Michael Horn  
Northwestern University  
Program Chair



Aaron Quigley  
University of St Andrews  
ITS General Chair



Miguel Nacenta  
University of St Andrews  
Program Chair



Per Ola Kristensson  
University of St Andrews  
ITS Local Chair

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Tony Tang

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Uta Hinrichs

Eve Hogan

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Jason Wiese

## Keynote Chair

Raimund Dachseitl

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## Industry Chairs

Luis Cabrera-Cordon

Johannes Schöning

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John Williamson

## Demo Chairs

Hideki Koike

Olli Mival

## Workshops and Tutorials Chairs

Tobias Isenberg

Joaquim A Jorge

## Proceeding Chair

Antti Jylhä

00																					
15:00																					
16:00																					
17:00																					
18:00																					
19:00																					
20:00																					
21:00																					

(Lower College Hall)

Welcome Drinks  
(Lower College Hall)Tutorials &  
Workshops  
(pg. 17)Music  
(St Salvator's  
Chapel)TTS Banquet  
(Lower College Hall)

TTS 2014







Tangibles

Posters  
(pp. 19-21)Latency and  
Occlusion +  
CSCW

Town Hall

Demos  
(pg. 18)



	08:00	09:00	10:00	11:00	12:00	13:00	14:00	
Sunday, October 6	Registration (Arts Building)							
	Doctoral Symposium (pg. 16)							
Monday, October 7	Registration (Younger Hall)	Tutorials & Workshops (pg. 17)		Tutorials & Workshops (pg. 17)	 (Buffer)	Tutorials & Workshops (pg. 17)		
		Keynote		Surfaces in Context + Gestures & Body	 (Buffer)	Pen a Touch		
				Posters (pg. 19-21)				
Tuesday, October 8	Registration (Younger Hall)							
		Education and Training		Redefining Surfaces	 (Buffer)	Touch Fund		
Wednesday, October 9	Best Paper & Best Note	Farewell and Capstone						
				Demos (pg. 18)				

We are delighted to welcome you to St Andrews in Scotland for the ACM International Conference on Interactive Tabletops and Surfaces (ITS) 2013 from October 6th - 9th. The conference is being hosted by the University of St Andrews, Scotland's first university and the third oldest in the English speaking world, which recently celebrated its 600th anniversary. We thank them and all of our sponsors for making ITS 2013 possible.

ITS 2013 begins with our doctoral symposium, workshop and tutorial programme on Sunday October 6th in the Arts Building. You can find a map for this and all our venues in this programme. On Sunday evening, as part of the 600th celebrations, the University welcomes you to an opening reception in Lower College Hall. Our paper programme begins on Monday October 7th with a keynote session in Younger Hall. Coffee breaks and lunches are served in Lower College Hall, with our poster session on Monday and demonstration session on Tuesday during these times. On Monday evening you are invited to a choir recital in St Salvator's chapel followed by our conference banquet in Lower College Hall. We are sharing our capstone talk with the keynote for UIST 2013, the 26th ACM Symposium on User Interface Software and Technology, and our best paper and best note will be presented on the morning of October 9th for the delegates of both conferences to attend. You can find the programme for UIST at the back of this booklet.

A conference such as ITS relies on the efforts of a large group of organisers. We would like to thank all of our conference committees and external reviewers for 2013. Our thanks also to all of the ITS 2013 student volunteers and local support staff who will be ensuring our programme proceeds smoothly over the coming four days. We hope you enjoy all aspects of the ITS 2013 programme, and that you get to enjoy this wonderful town and University and that your discussions and interactions prove fruitful for the future of Interactive Tabletops and Surfaces research around the world.

Per Ola Kristensson  
*ITS Local Chair*

Giulio Jacucci  
*ITS General Chair*

Aaron Quigley  
*ITS General Chair*

## Sponsors

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The ACM Interactive  
Tabletops and Surfaces 2013 Conference



October 6 - 9, 2013  
St Andrews, UK

Conference Program

# Interactive Tabletops & Surfaces