HCI – An Evolving Research Field

• Computing devices are becoming more capable of sensing and acting
• Instead of focusing on smaller, faster and cheaper, HCI is about making technology more accessible and finding interesting uses
• The ultimate goal is to interact naturally and gracefully, with voice, gesture, touch, etc.
We conduct interdisciplinary research spanning science, technology and design.

We create the sensors, devices, interactions and scenarios that will drive the next generation of natural user interfaces and reshape human activities for the better.
PICOntrol
Using a Handheld Projector for Direct Control of Physical Devices through Visible Light

Dominik Schmidt  Microsoft Research Asia / Lancaster University
David Molyneaux  Microsoft Corporation / Lancaster University
Xiang Cao  Microsoft Research Asia

UIST 2012  |  10 Oct  |  Boston
PICOntrol: A New Remote Control

• Point, project and control
• Uses off-the-shelf handheld pico projector and low-cost photo sensors
• Embeds control signals within projected images
• Peer-to-peer, no WIFI needed

Creative Use of Technology
MicroMandarin
Mobile Language Learning in Context

Darren Edge  Microsoft Research Asia
Elly Searle  University of Washington
Kevin Chiu  MIT Media Lab
Jing Zhao  Peking University
James Landay  University of Washington

CHI 2011  |  12 May  |  Vancouver
MicroMandarin:
Mobile Language Learning in Context

Human-Computer Interaction Group
Microsoft Research Asia
Context- & Frequency-Based Learning Are Complementary

**Context-Based**
- Micro-learning fits a busy lifestyle
- Studying context-relevant words encourages their usage

**Frequency-Based**
- Frequency-based drilling works better for beginners
- Studying frequently-used words helps improve language skills

Language Learning based on Theory
Reaction Media

Yingnong Dang
Xia Zhang
Shuxin Cheng
Sergio Paolantonio
Xiang Cao

Microsoft Research Asia
ReactionMedia
MSRA SA group and HCI group
ReactionMedia: Share Your Life

- Enhance emotional connections between people using their natural reactions
- Create new forms of communication targeting people’s engagement with online media
- Vision ➔ Concept ➔ Prototype

Make the Emotional Connections through Design
Industrial Design

Jiawei Gu  Microsoft Research Asia
Lync Wireless Headset Industrial Design – SCENARIO & UX

Can you hear me?

Switch

Signal is not smooth
Lync Wireless Headset Industrial Design – SCENARIO-BASED SKETCH

- Ultra mobile
- Managing volume, mute, end call
- No space on mess table
- Quick transportation
- Don’t know if the headset is connected
- Be aware of environment around
- Missing calls
- Long time call, forget to charge battery
- Transport with you anywhere
- Easy switch to shared ambient
BodyScope
An Acoustic Wearable Sensor for Activity Recognition

Koji Yatani  Microsoft Research Asia
Khai N. Truong  University of Toronto

UbiComp 2012  |  5 Sept  |  Pittsburgh
BodyScope: Record Your Life

- BodyScope is a wearable sensor which records the sound in the user’s throat area
- BodyScope can recognize different user activities, such as eating, drinking, speaking, and laughing
- 79.5% accuracy in the lab; 71.5% in-the-wild
SlickFeel  Sliding and Clicking Haptic Feedback on a Touchscreen

Xiaowei Dai  Microsoft Research Asia  Beihang University
Jiawei Gu  MIT Media Lab
Xiang Cao  Microsoft Research Asia
J. Ed Colgate  Northwestern University
Hong Z. Tan  Microsoft Research Asia

UIST 2012  |  8 Oct  |  Boston
SlickFeel Lets You Feel the Interface

- Touchscreen are becoming ubiquitous
- Yet the cold glass does not touch us back
- We create technologies that enable touch feedback on touchscreens
- This is the first time that friction modulation and key-click simulations have been implemented on the same piece of glass

Haptics: Towards Touchy-Feely Interfaces
A Glimpse into the Future of HCI

- Theory
- Design
- Hardware
- Software

Human interactions