It’s Official: Voice Is Worthless
It’s Official: Voice Is Worthless
It’s Official: Voice Is Worthless

Additional Local Airtime Service

Phone (minutes)

Total Airtime
First Click: Please stop calling my smartphone

June 29th, 2015

By Thomas Ricker on June 29, 2015 07:30 am

Figure 3: Percentage of time spent using different smartphone communication app categories

Source: Ericsson ConsumerLab, Communication in the world of apps, 2015
Base: Android users in India, Japan, South Korea, the UK and the US

http://www.theverge.com/2015/6/29/8860709/please-stop-calling-my-smartphone
Social media influences documentary-makers

Social media have had a truly revolutionary effect, enabling filmmakers and citizens to disseminate their own stories.

Meg Carter
The Guardian, Monday 6 June 2011

Mobile phones and social media played a crucial role in organising and documenting protests across the Middle East. Photograph: Mohammed Abed/AFP/Getty Images

With built-in video cameras now the norm for mobile phones, anyone can be a film-maker – a fact proven by the role social content played in TV news coverage of the recent uprisings in the Middle East. As the dust settles, however, social media is influencing documentary-makers, too.
The Latest: Boat with migrants sinks in Greece; 26 missing

Sep 20, 2015

ATHENS, Greece (AP) — The latest developments as European governments rush to cope with the huge number of people moving across Europe. All times local:

A group of migrants sit on the grass and wait to continue their journey, as their solar batteries used for charging cellphones are being charged, in Letenye, at the border crossing between Croatia and Hungary, Saturday, Sept. 19, 2015. Croatia on Friday said it was overwhelmed by the influx of thousands of people in just a few days and would be sending them to Slovenia and Hungary. (AP Photo/Darko Bandic)
Syrian Refugees Are Finding Safe Haven Using Apps

Migrants find new route to bypass Hungary

Apps Continue to Dominate the Mobile Web

<table>
<thead>
<tr>
<th>Year</th>
<th>Apps</th>
<th>Mobile Web</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>2014</td>
<td>86%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Source: Flurry Analytics

Steve Jobs was initially opposed to apps, new biography reveals

By Amar Toor posted October 21st 2011 7:37AM

Walter Isaacson's new book on late Apple CEO Steve Jobs has yet to be released, but the Huffington Post recently obtained an advanced copy of the authorized biography, and highlighted some of its most salient revelations. Throughout the course of the 656-page book, Isaacson provides fascinating and often intimate insight into Jobs' life and times, including details on his childhood, his Bob Dylan-drenched iPod and, perhaps most notably, his curious philosophy on apps. Strange as it may seem, Jobs was initially opposed to the very concept of an app-based environment, for fear that his company may not be up to the task.
Insurgents Used Cell Phone Geotags to Destroy AH-64s in Iraq

by JOHN REED on MARCH 15, 2012

1,198 people like this. Be the first of your friends.
“Warren cited a real-world example from 2007. When a new fleet of helicopters arrived with an aviation unit at a base in Iraq, some **Soldiers took pictures** on the flightline, he said. From the photos that were uploaded to the Internet, the enemy was able to determine the exact location of the helicopters inside the compound and conduct a mortar attack, **destroying four of the AH-64 Apaches.**”

http://www.army.mil/article/75165/Geotagging_poses_security_risks/
Warren cited a real-world example from 2007. When a new fleet of helicopters arrived with an aviation unit at a base in Iraq, some Soldiers took pictures on the flightline, he said. From the photos that were uploaded to the Internet, the enemy was able to determine the exact location of the helicopters inside the compound and conduct a mortar attack, destroying four of the AH-64 Apaches.

http://www.army.mil/article/75165/Geotagging_poses_security_risks/
OPSEC: be safe, be smart

By Staff Sgt. Emerson Nuñez, U.S. Air Forces Central Command Public Affairs / Published August 14, 2015

Social media can be a useful tool to stay connected to friends, family, and quick entertainment. However, there is sometimes a fine line between letting your friends know what you're up to and providing an adversary critical information about your connection to the military and its mission.

(Photo Illustration by Staff Sgt. Emerson Nuñez)
China warns soldiers against wearable gadgets: PLA Daily

AFP
May 14, 2015

China has warned its soldiers against using smartwatches, high-tech spectacles and other Internet-connected wearable gadgets, saying they could 'endanger security'
Watch a Bunch of Sailors Smash Their Smartphones as Punishment

Navy cadets aren’t supposed to take their phones to training in Thailand. If they do, their superiors give them blocks of concrete and a tough order: 

SMASH IT!

What kind of failure is this?
What kind of failure is this?

A mobile app doesn't just have an interface...
What kind of failure is this?

A mobile app doesn't just have an interface...

...a phone often is the interface
What kind of failure is this?

A mobile app doesn't just have an interface... a phone often is the interface

Side-effects can be more important than the use cases you designed for
What kind of failure is this?

A mobile app doesn't just have an interface…

a phone often is the interface

Side-effects can be more important than the use cases you designed for

Our devices can be too smart,

but with the smarts hidden from view
Siri answers question during White House press conference

Technically Incorrect: Did someone have an advance edition of Apple's "always-on" Siri? For she suddenly spoke when no one expected her to.
Context is king
Context is king

Comparing evaluation methods for encumbrance and walking on interaction with desktop computers

Alexander Ng, John H. Williamson,
Stephen A. Brewster
Proc. Mobile HCI 2014, Toronto, ON
Context is king

Comparing evaluation methods for encumbrance and walking on interaction with desktop computers

Alexander Ng, John H. Williamson,
Stephen A. Brewster

Proc. Mobile HCI 2014, Toronto, ON
Context is king

Comparing evaluation methods for encumbrance and walking on interaction with desktop-computers

Alexander Ng, John H. Williamson, Stephen A. Brewster

Proc. Mobile HCI 2014, Toronto, ON
Context is king

Comparing evaluation methods for encumbrance and walking on interaction with touchscreen mobile devices

Alexander Ng, John H. Williamson,
Stephen A. Brewster

Proc. Mobile HCI 2014, Toronto, ON
Helping blind people

Humanware
Trekker Breeze

mobile GEO

new
Kapten
PLUS

EO-Guidage.com
Kapsys.com
Helping blind people

Humanware Trekker Breeze

PGS

http://www.geog.ucsb.edu/pgs/images/reg1.jpg
http://www.geog.ucsb.edu/pgs/images/version3_3.jpg

EO-Guidage.com

Kapsys.com

http://sonify.psych.gatech.edu/research/swan/
Helping blind people

Humanware Trekker Breeze

PGS

EO-Guidage.com

Kapsys.com

SWAN

Ariadne GPS
By Giovanni Ciaffoni
Open iTunes to buy and dow
Don't block the ears

Audio Bone 1.0

Mad Catz AirDrives
Blind user testing

Informal indoor discussions

Outdoor informal walks

Formal tests on streets of Montreal

Longer-term testing by users in their daily routines
Blind user testing

Informal indoor discussions

Outdoor informal walks

Formal tests on streets of Montreal

Longer-term testing by users in their daily routines

How to test mobile apps?

- Traditional usability tests in lab
- Logging to device / server
- Pre/post questionnaires

Context: awareframework.com

What is AWARE?

AWARE is an Android instrumentation framework for logging, sharing and reusing mobile context. It comes bundled with applications that understand YOU.
Evaluation: still lots of debate

Was it Worth the Hassle? Ten Years of Mobile HCI Research Discussions on Lab and Field Evaluations

Jesper Kjeldskov and Mikael B. Skov
Centre for Socio-Interactive Design, Department of Computer Science
Aalborg University, Selma Lagerlöfs Vej 300, DK-9220 Aalborg East, Denmark
{jesper, dubois}@cs.aau.dk

ABSTRACT
Evaluation is considered one of the major cornerstones of human-computer interaction (HCI). During the last decade, several studies have discussed pros and cons of lab and field evaluations. Based on these discussions, we conduct a review to explore the past decade of mobile HCI research on field and lab evaluation, investigating responses in the literature to the “is it worth the hassle?” paper from 2004. We find that while our knowledge and experience with both lab and field studies have grown considerably, there is still no definite answer to the lab versus field question. In response we suggest that the real question is not if – but when and how – to go into the field. In response we suggest moving beyond usability evaluations, and to engage with field studies that are truly in-the-wild, and longitudinal.

adequately simulate such important aspects as the weather and could not easily provide for the wide range of competing activities and demands on users that might arise in a natural setting” and he continued by saying that “data collection methods would be needed that were outside the common range of usability studies” [28].

Despite these initial suggestions, Kjeldskov and Graham’s survey of mobile HCI research between 2000-02 showed no research focusing on mobile evaluation methodology, and that 71% of all evaluations of mobile devices and services were done in the lab [35]. In direct response to this, we conducted a comparative study on field and lab evaluations of a mobile system with the purpose of investigating the value of evaluating usability in the field [36]. In this study we found – surprisingly – little added value in the field.
« J’adore le fait qu’il y a beaucoup d’informations que je manquerai sans ça, je pense que dans le futur si je vais explorer un nouvel endroit, je voudrais définitivement savoir ce qu’il y autour de moi, pour que je puisse savoir où aller... comme tout le monde, vous savez... je ne pourrais pas savoir à moins que quelqu’un me le dise, ou que je rentre à l’intérieur... avec ça je peux avoir l’information et c’est là, donc je sais ce qu’il y autour de moi » (Participant)
Lessons learned

Lab environment: misleading

Never make user wait for something to finish

Triggering sounds: when? what?

Sensors are unreliable. Really.
Location error: downtown

What does that look like in practice?
Snapping
Heading error

iPhone 4, Chest, CCW, Commercial
Why biased clockwise?
Gyro/compass fusion not a net benefit
Note: head position is worst
Egocentric rendering
Intersection rendering
Intersection rendering

Egocentric: “Ahead 50m”
Intersection rendering

Egocentric: “Ahead 50m”

Intersection: “10m past intersection Rue Milton & Rue University”

+ Different mental model
+ More robust to location error
Intersection rendering

Egocentric: “Ahead 50m”

Intersection: “10m past intersection Rue Milton & Rue University”
  + Different mental model
  + More robust to location error

Dual: “Ahead 50m. 10m past …”
“Is a smartphone less expensive than a device designed from scratch specifically for blind users?”

No
(Well, maybe sometimes...)
“Is a smartphone you already have less expensive than a device designed from scratch specifically for blind users?”

Yes

(Always)
Implicit communication

<table>
<thead>
<tr>
<th></th>
<th>Local</th>
<th>Remote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicit</td>
<td>Talking, touching</td>
<td></td>
</tr>
<tr>
<td>Implicit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Implicit communication

<table>
<thead>
<tr>
<th></th>
<th>Local</th>
<th>Remote</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explicit</strong></td>
<td>Talking, touching</td>
<td></td>
</tr>
<tr>
<td><strong>Implicit</strong></td>
<td>Voice tone and volume, body language</td>
<td></td>
</tr>
</tbody>
</table>
## Implicit communication

<table>
<thead>
<tr>
<th></th>
<th>Local</th>
<th>Remote</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explicit</strong></td>
<td>Talking, touching</td>
<td>Phone call, text message</td>
</tr>
<tr>
<td><strong>Implicit</strong></td>
<td>Voice tone and volume, body language</td>
<td></td>
</tr>
</tbody>
</table>
## Implicit communication

<table>
<thead>
<tr>
<th></th>
<th><strong>Local</strong></th>
<th><strong>Remote</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explicit</strong></td>
<td>Talking, touching</td>
<td>Phone call, text message</td>
</tr>
<tr>
<td><strong>Implicit</strong></td>
<td>Voice tone and volume, body language</td>
<td>Automatic chat “away” indicator</td>
</tr>
</tbody>
</table>
Goal

Build a practical mobile system that links people together for remote implicit communication, without using a visual display.

Question:
Does this become a new sense?
A Sixth Sense for a Wired World

What if, seconds before your laptop began stalling, you could feel the hard drive spin up under the load? Or you could tell if an electrical cord was live before you touched it? For the few people who have rare earth magnets implanted in their fingers, these are among the reported effects -- a finger that feels electromagnetic fields along with the normal sense of touch.

It's been described as a buzzing sensation, a tingling, an oscillation, movement, pure stimulation and, in the case of body-modification expert Shannon Larrett's encounter with a too-powerful antitheft gateway at a retail store, "Like sticking your hand in an ultrasonic cleaner."

Body-mod artists Jesse Jarrell and Steve Haworth's original idea was to implant a magnet to carry metal gadgets. It turns out that doesn't work: If you try to carry something magnetic on your implant regularly, the pinched skin between the magnets dies and your body rejects the implant. But they came up with a new application when a mutual friend suffered an accident that left a shard of iron in his finger. He worked with audio equipment, and found that he could tell which speakers were magnetized from the sensation that passed through his body.
Existing efforts

kevinwarwick.com:

“Kevin appears in the 2013 edition of the Guiness World Records Book for the first direct electronic communication between two nervous systems with his wife Irena.”
Existing efforts

CoupleVIBE : Unique vibration pattern triggers when partner enters a predefined location


Feelabuzz (feelabuzz.org) : Real-time accelerometer data from one phone continuously vibrates another

Finding middle ground

Completely digested: loses richness
Continuous raw data: overwhelming

PROPOSAL: summarize motion data to preserve richness, without an overwhelming continuous signal
Finding middle ground

Completely digested: loses richness
Continuous raw data: overwhelming

PROPOSAL: summarize motion data to preserve richness, without an overwhelming continuous signal

Also break away from sensors and actuators inside phones
Sensors everywhere!

Nexus5
play.google.com

- Sensors
- Accelerometer
- GPS
- Compass
- Proximity/Ambient Light
- Gyroscope
- Pressure
- Hall Effect
Sensors everywhere!

Nexus5
play.google.com

Sensors
Accelerometer
GPS
Compass
Proximity/Ambient Light
Gyroscope
Pressure
Hall Effect

fitbit.com

getpebble.com
Sensors everywhere!

Nexus5
play.google.com

fitbit.com

getpebble.com

omsignal.com
Prototype: hardware
Prototype: summarize motion

Watch collects 3-axis accelerometer readings from ankle

Sends summary to partner every 12 seconds

Watch plays three vibration pulses, one for each axis, durations relative to force in each axis
Prototype: architecture

PubNub real-time messaging

Internet (WiFi or cellular data)

Nexus 5 phone

Bluetooth LE (BLE)

Pebble watch

TI SensorTag

Nexus 5 phone

Pebble watch

TI SensorTag
Initial results (anecdotal!)

Pulses communicate meaning
Initial results (anecdotal!)

Pulses communicate meaning
Initial results (anecdotal!)

Pulses communicate meaning
Not a guessing game

Guessing activity from one set of pulses is not the interesting part

What is interesting?
- meaning from changes in pattern
- context with other knowledge
- “focusing” on new sense
Mobile: think different

Context: In-situ usability is crucial
Context: In-situ usability is crucial
...your app is often not primary focus
Context: In-situ usability is crucial
...your app is often not primary focus

Devices never work as well as hoped
Mobile: think different

Context: In-situ usability is crucial
...your app is often not primary focus

Devices never work as well as hoped
...except when you wish they hadn't
Context: In-situ usability is crucial
...your app is often not primary focus

Devices never work as well as hoped
...except when you wish they hadn't

Please don't just “build an app”
Context: In-situ usability is crucial
...your app is often not primary focus

Devices never work as well as hoped
...except when you wish they hadn't

Please don't just “build an app”
...if you do, think beyond the screen
Jeff Blum, PhD Student
Shared Reality Laboratory
http://srl.mcgill.ca