Augmented Reality
continuing what the Internet started

Christine Perey
Who am I?

• Consultant/analyst
• Management consulting
  – Strategy
  – Partnerships
• Market research
• Market development
• Technology scouting and transfer

• 1991
  Personal multimedia
• 2004
  Mobile multimedia
• 2006
  Mobile Augmented Reality
• 2010
  – Print & publishers
  – Retail & commerce
Agenda

• What is Augmented Reality?
  – A little history
  – What needs does it meet?
  – What problems does it solve?
• Where is it heading?
• Why should you care?
• What can you do?
What is AR?
WorldBoard Concept 1996

1990s: many researchers started to co-locate information with physical space.


Information “in place”
The world as a repository of information.
Ten years later
(presented at SIGGRAPH 2006)

Photo Tourism
Exploring photo collections in 3D

• Make use of “Web 2.0” photo collections (e.g. Flicker)
• Automatic process to register images to common coordinate system
• Browse this registered collection as a 3D image world
AR is not one technology

• The “cyber-colonization” of the real world

• A highly compelling, virtually endless SET of technology-assisted experiences

• It is part of the Real Time Web
Often confused with Visual Search

- Google Goggles
- Nokia Point & Find
- kooaba Interactive Print
- Ricoh iCandy (iPhone)
camera, GPS, compass, accelerometer, microphone

Arriving in Montreux in 15 min
Physical world “triggers”

• Explicit (printed markers)
• Implicit real world triggers
  – Text (posters, signs, page of print)
  – Photo/drawing
  – Faces
• Fixed position in space (GPS + compass,
• Sounds (music, voices)
The “associated” digital data

- A circle which has POI information associated with it (e.g., Layar)
- A text box (e.g., AcrossAir, Wikitude)
- A 3D object in fixed position (e.g. junaio)
- A “free standing” animated 3D object
- An “object” which can be manipulated/with which user can interact (e.g., games)
Mobile AR Users Today

• 1+ Million
• Technology elite
  – Mostly male
  – Flat rate data plans
  – Smartphones
    • 90+% of activity on Android and iPhone
  – Tolerant of rough edges
  – Avid users of social networking
• Japan, Western Europe and US
Value proposition?

• It depends
  – Novelty “just to see differently”
  – Information (in real time or not) in context
  – Service or friend discovery

– Experiences
Why AR now?

Social media
Real-time Web

Socio-cultural trends

Digital content

Handsets
Networks

Personal navigation
Local search
3D in home

Wearable computing

3D cinema

- GPS
- Compass
- Powerful processors
- Bandwidth to access cloud
The evolution of AR

**Today**
- Mobile relies largely on location-based triggers and cloud-based data
- PC-based experiences rely largely on markers and locally-stored data bases

**Beyond 2010**
- Markers disappear
  - Recognition of every day objects and people
- User experience improves
  - Active Matrix Organic LED
  - Pico Projectors
  - Overlay with lights and camera (mobile phone)
Eyewear
The AR Ecosystem
AR Ecosystem

The Digital World

Packaging, Discovery & Delivery

The Physical World

Sensors on Mobile devices

wallet
Packaging: App Developers

Mobilizy  
AcrossAir  
Presselite  
Layar  
Nokia  
Yelp  
GeoVector  
Metaio  
Fraunhofer  
Imagination (AT)  
TAT  
Tonchidot  
SequencePoint Software  
int13  
SR Engine  
kooba  
Robot vision  
Cyborg  
ARToolworks  
iPhoneARkit  
iTacitus  
UrbanSpoon  
+ Game Developers  
GraffitiGeo  
GetFugu  
SnapTell  
Chemical Wedding  
Insula Communications  
Salzburg Research  
Augment This!  
Pongr  
LastMinute Labs (Qype)  
Total Immersion  
Ogmento  

As of Feb 1, over 2,000 developers have access to Layar platform!
Discovery and Delivery

- Mobile network operators
- Network Equipment Providers
  - Alcatel Lucent
  - Ericsson
- Operators of cloud-based algorithms
  - Context identification
  - Device ID/management
  - Digital Publishing Software
  - Information Infrastructure Software providers
- Handset manufacturers
  - Nokia
  - HTC
  - Samsung
- Operators of Application Stores
  - Apple
  - Google
  - RIM
  - Nokia
- Cross media promotions
  - Legacy (print, radio, TV)
  - Digital (eBook, Web)
Enablers

Device

• Mobile OS providers
  – Google
  – Apple
  – Symbian
  – BREW
  – Microsoft

• Mobile components
  – Sensors (GPS, compass, video camera)
  – Displays

• Mobile handset manufacturers
  – SDKs for AR developers

AR Content enablers

• AR SDKs and APIs
  – Layar
  – Mobilizy
  – AcrossAir
  – GeoVector
  – Metaio
  – Open Source

• Algorithms
  – Natural Feature Recognizers
  – Speech ↔ Text

• 3D and 2D graphic tools
AR Ecosystem

The Digital World

CONTENT
Providers/Publishers
Merchants, Brands

Enablers
Providers of enabling technology

Packaging, Discovery & Delivery

Social Media

The Physical World

Money and Statistics

Sensors on Mobile devices

wallet
Finding your way
Breathing new life

• “Magic books” using AR with a webcam or camera phone and printed paper
  – Templar Dragonology
• Interactive magazines
  – Popular Science
  – Esquire magazine
  – InStyle
  – Others
Marketing for publishers and brands

• Help customers and prospects find and purchase CDs, Books and DVDs using natural feature recognition (visual search)
AR Games

- Shoot’em up
- Digital signage (Fancouver, yaho)
- Learning games
What’s missing?

- Computational power at low power consumption
- Algorithms understand moving shapes
- Good (excellent) user experiences
- Integration with business and backend
FAQs and Troubleshooting

Viewing Problems

All I get is a blank OlogyWorld screen
The necessary plug-in to view the experience is not installed, or you do not have a webcam connected to your computer. Please also check your computer has the system requirements and is running the necessary software (see System Requirements).

When I launch the 3-D Dragon I get a message saying 'Your computer is not compatible. See System Requirements for more details.' does this mean I cannot view the dragon?
Yes, your computer doesn't meet the necessary system requirements. Check the system requirements and try on another computer.

The plug-in seems to take a long time to download and install.
Depending on the speed of your internet connection it make take some time to download and install the plug-in. Please be patient it's well worth the wait!

I've installed the plug-in, but when I come back to launch the animation it crashes my internet browser.
If this happens close down your browser and then come back to the
Authoring AR Content Today

Current limitations
• Specific platforms (handsets, players)
• Physical “anchor” recognition
• Low ability to represent and manipulate objects (unless using game engines) or introduce interactivity
On the Frontier

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Augmented Reality continues what the Internet started

Augmented Reality is about providing experiences

Augmented Reality is a new source of revenue
Mobile Augmented Reality

Reality Improved

Christine Perey
cperey@perey.com
+41 79 436 68 69
+1 (617) 848-8159