# Bridging the gap between print and digital environments

Rachel Vacek
Twitter: @vacekrae

Anita Riley
Twitter: @anitazavrrr

University of Houston Libraries

Innovations in Teaching and Learning Technology Conference
November 11, 2010

# Outline

- QR Codes
  - Examples
- Augmented Reality
  - Examples
- Questions

# What is a QR code?

- Quick Response code
- Originated in Japan in 1994
- Denso Wave owns the patent
- 4,296 characters

# What do you put in a QR code?

- URLs to web pages, music, video, images
- Business card info
- Geo-coordinates
- Text

- Try to keep URLs under 300 characters for less complex code

# Simple vs. Complex

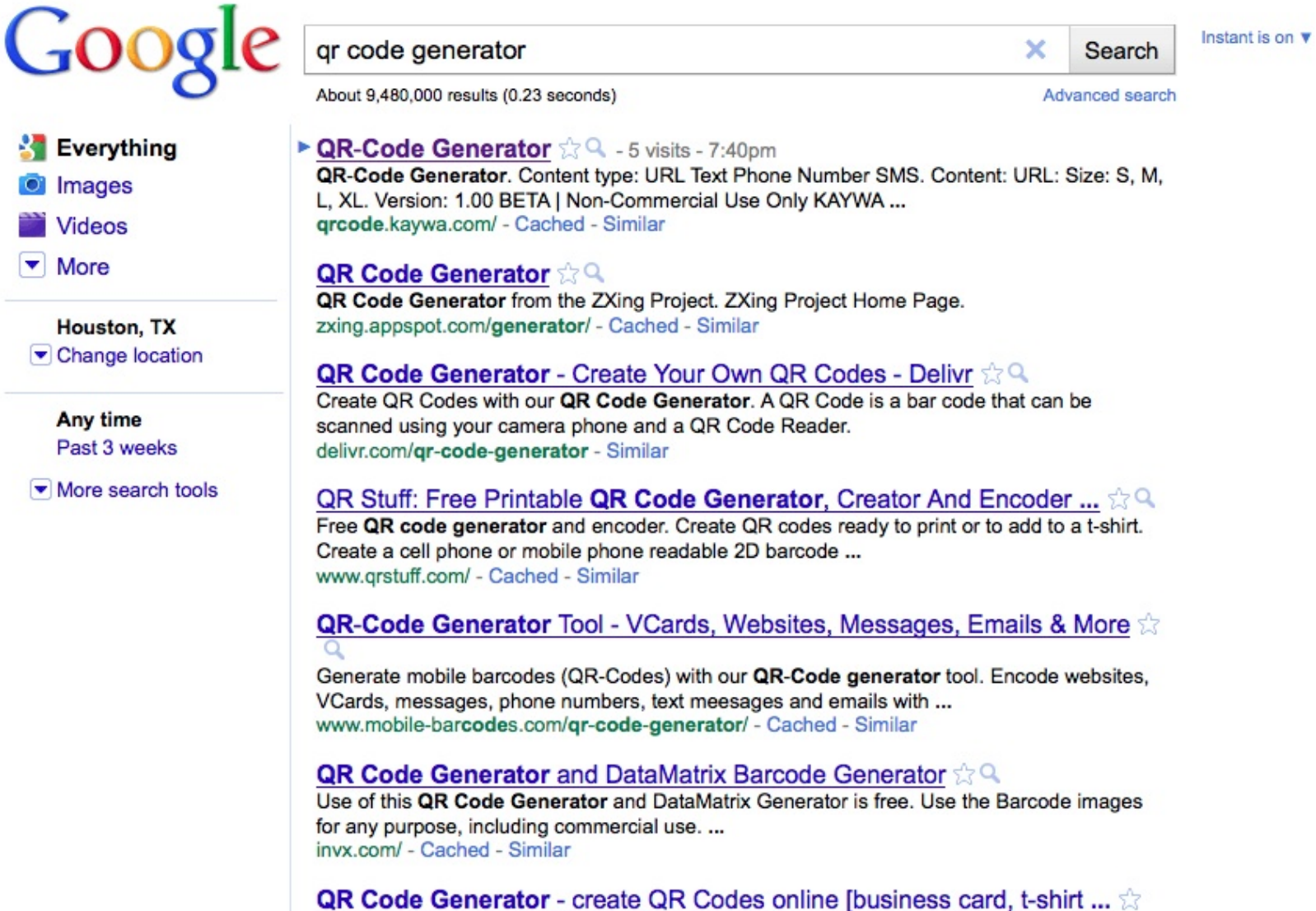
http://info.lib.uh.edu

http://uh.summon.serialssolutions.com/search?s.cmd=addFacetValueFilters%28ContentType,Journal+Article%29&s.fvf=IsFullText,true,&s.pn=1&s.q=qr+codes

# CSI explains QR codes

http://www.youtube.com/watch?v=43886f2c06I

# How do I generate one?



# Features of generators

- Support foreign language
- Multiple sizes
- Generates multiple kinds of codes
- Multiple colors
- Can include vCard or iCal info
- Save as png, jpg or even pdf
- May give you the embed code

http://2d-code.co.uk/qr-code-generators/

# Example of a generator

GOQR.ME

Home | Services | QR Code API | About | Blog | en-us

Text | URL | Call | SMS | vCard

| | |
|---|---|
| First name: Rachel | Adress: 114 University Libraries |
| Last name: Vacek | Postal code: 77204 |
| Phone: 713-743-5820 | City: Houston |
| Email: revacek@uh.edu | Organization/company: University of Houston L |
| Website: http://info.lib.uh.edu | Position/role: Head of Web Services |

Note: Most fields are optional. Address will only be stored within the QR Code if "Address", "Postal code" and "City" are filled out.

size: 250×250px

Download | Open | Options | <Embed>

# Why it's better to stick to a URL

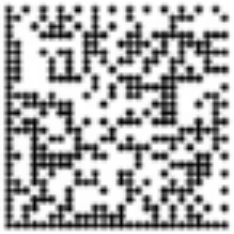
- Flexibility
  - QR codes are static, content on web pages is dynamic
- Measurability
  - You can't directly track scans of QR codes, but you can measure resultant page views
- Simplicity
  - More content = more complex code = reduced readability

http://www.imediaconnection.com/content/26320.asp

# Other 2d codes

QR-Code

DataMatrix

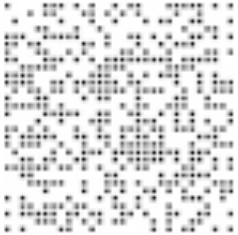

Cool-Data-Matrix

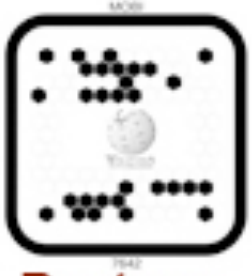
Semacode

Trillcode

Quickmark

Shotcode


connexto


Beetagg

Qode

http://commons.wikimedia.org/wiki/File:2D-Codes.png

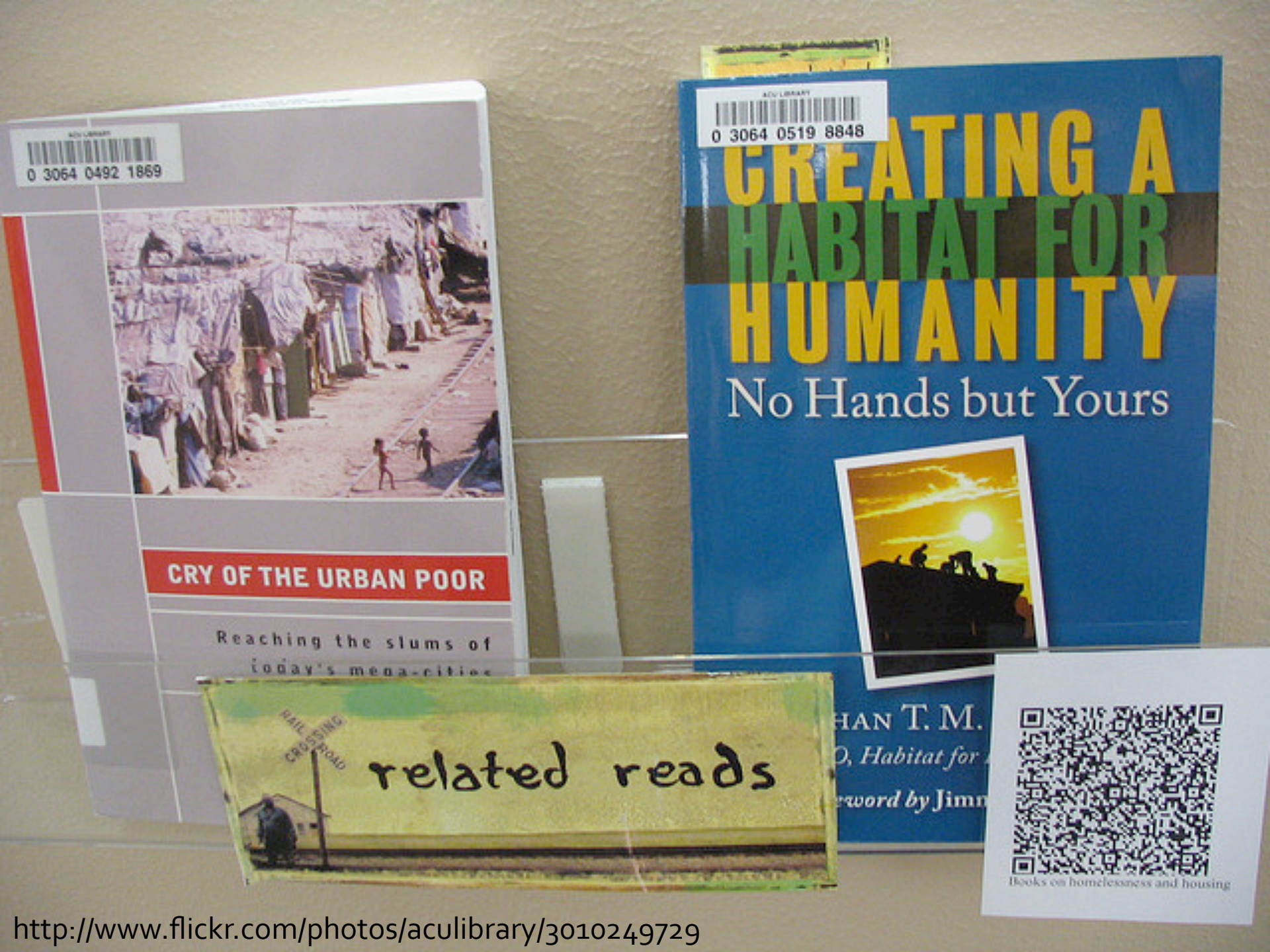
# Why QR?

- Open and international standard
- Proven technology
- Simple barcode scanners can read them
- 2009 Educause Report:
  "7 Things you should know about…QR Codes"
  - http://www.educause.edu/ir/library/pdf/ELI7046.pdf

# What do you stick it on?

# Potential QR code applications

| | |
|---|---|
| **Printed handouts** | To get more info, lecture links, library resources, etc. |
| **Assignments / Tests** | To ensure anonymity in grading. |
| **Classroom / Lab Equipment** | To view instructional video on how to use equipment. |
| **Submit Surveys / Feedback** | To link directly to web-based feedback forms, submit positive/ negative feedback by scanning a particular code, etc. |
| **Experiential Learning** | To enhance learning games, historical tours, etc. |
| **Marketing signage** | To get more event info, schedule, map of location, etc. |
| **Books / Journals** | To link to e-versions or supplemental material. |
| **Study Aids** | To make cheat-proof flashcards. |

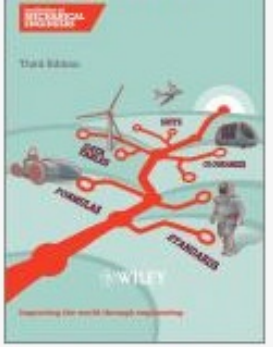



http://www.flickr.com/photos/aculibrary/3010249729

# Engineers' data book

**Matthews, Clifford.**
Publisher: John Wiley,
Publication date: 2004.
ISBN: 9780470026984

1 copy on the shelves.



## Copy details

| Shelf mark | No. of copies | Loan type | Location |
|---|---|---|---|
| 620(083) MAT | 1 | Reference collection | Level 3 (see floorplan) |

## Catalogue record

**ISBN:** 9780470026984 (pbk.)
**ISBN:** 0470026987 (pbk.) :
**Personal Author:** Matthews, Clifford.
**Title:** Engineers' data book / by Clifford Matthews.
**Edition:** 3rd ed.
**Publication info:** Chichester : John Wiley, 2004.
**Physical descrip:** xvii, 268 p. : ill. ; 17 cm.
**General Note:** Previous ed.: London: Professional Engineering, 2000.
**General Note:** At head of title: IMechE.
**Bibliography note:** Includes bibliographical references.
**Abstract:** Providing concise and up-to-the-minute information for the mechanical engineer, this text covers the basic principles that underpin every engineering issue. It also includes data for conversions and engineering rules and information on risk-based techniques and assessement.
**Subject term:** Mechanical engineering Tables.
**Added corporate name:** Institution of Mechanical Engineers (Great Britain)


- More information on Google Book Search

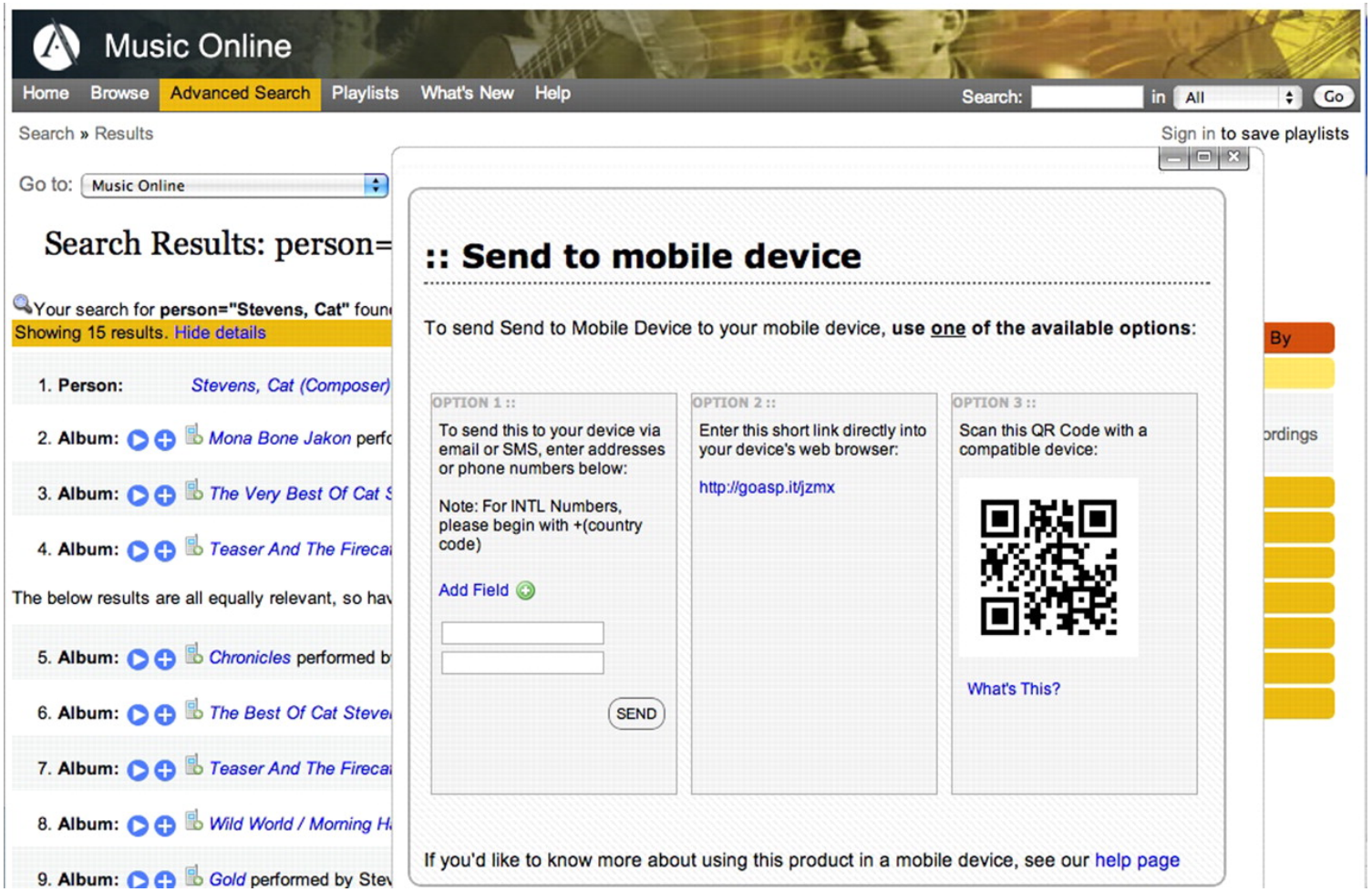
Save

- Place Hold
- Permalink for this result
- Find more by this author
- Find more on these topics
- Order online from BLACKWELL
- Bath copies
- Send me a scanned article/chapter from this item

What's this?


http://library.bath.ac.uk/uhtbin/bath/UB-LIBS/ckey/1678947

# Music Online database




http://crln.acrl.org/content/71/10/526/F4.large.jpg

http://www.flickr.com/photos/aculibrary/3011492470/

The University of Alabama College of Human Environmental Sciences welcomed alumni and friends for homecoming festivities with this QR code placed on a sign at Doster Hall.

http://blog.al.com/live/2010/10/alabama_homecoming_moody_racism.html

# The level of student engagement with QR Codes

JUL
23

## Level of student engagement with QR Codes: A cross institutional study

Posted by Andy Ramsden in Uncategorized  1 Comment »

I've just written up the findings from the cross institutional study on student engagement with QR Codes. This covered students at the University's of Bath, Gloucestershire, Leicester and Sheffield.

13 tweets

retweet

Report available from: http://opus.bath.ac.uk/19974/

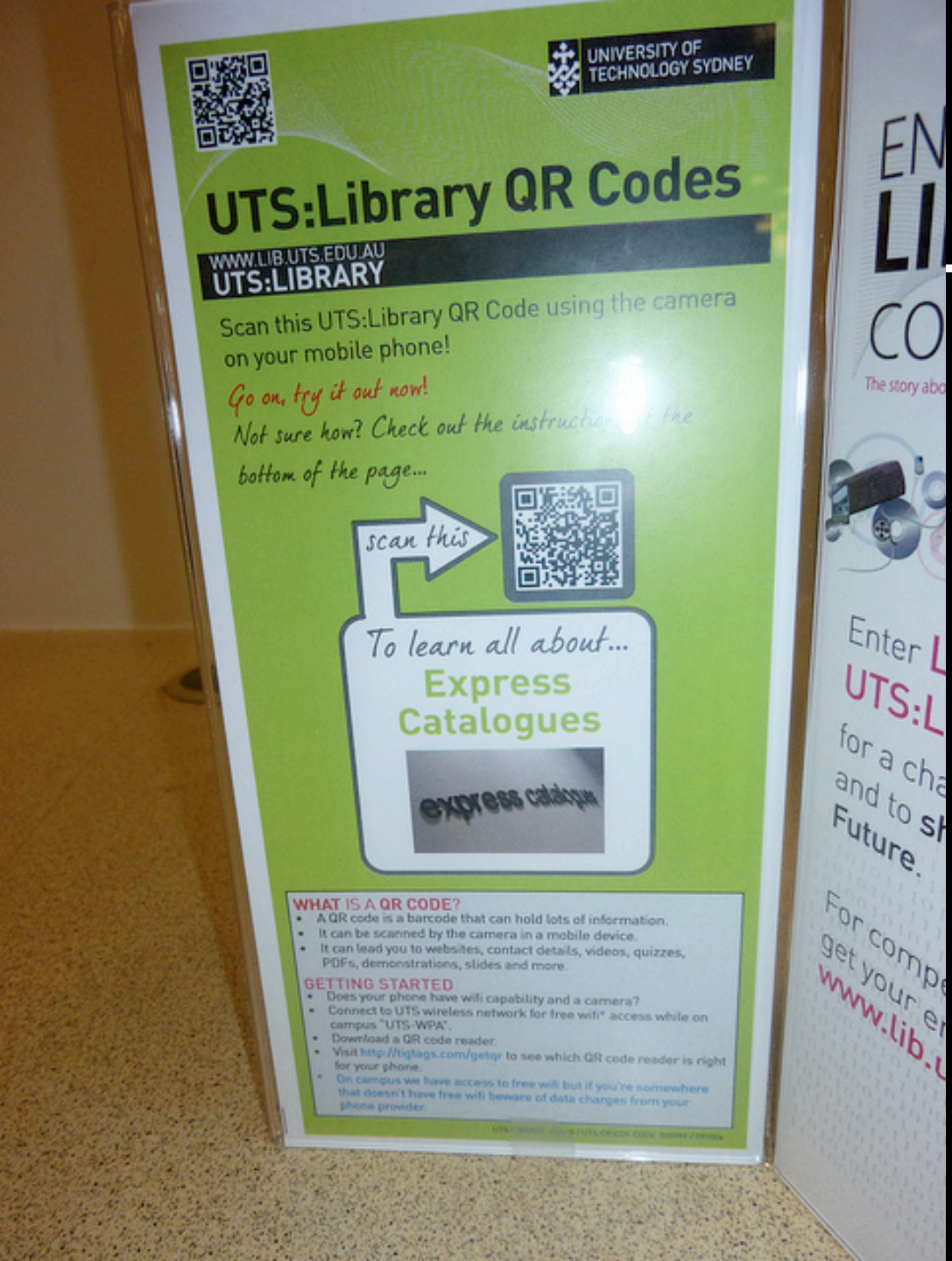
The intention was to answer the following questions; Do students know what a QR Code is? Have they accessed a QR Code on their mobile device? How appealing are QR Codes for entering mobile information? Would students access learning materials on their mobile phones?

The findings will help inform the appropriate design for effective QR Code based learning activities and campus tours.

The findings suggest, when compared to the results of a previous survey; students are becoming more aware of QR Codes, more students have experienced scanning a QR Code on their device, they find the use of QR Codes to access information very appealing compared to manual entry of information on their phone, and they are not enthusiastic to spend their own money on accessing learning materials on their mobile phones and would prefer to access them on a computer

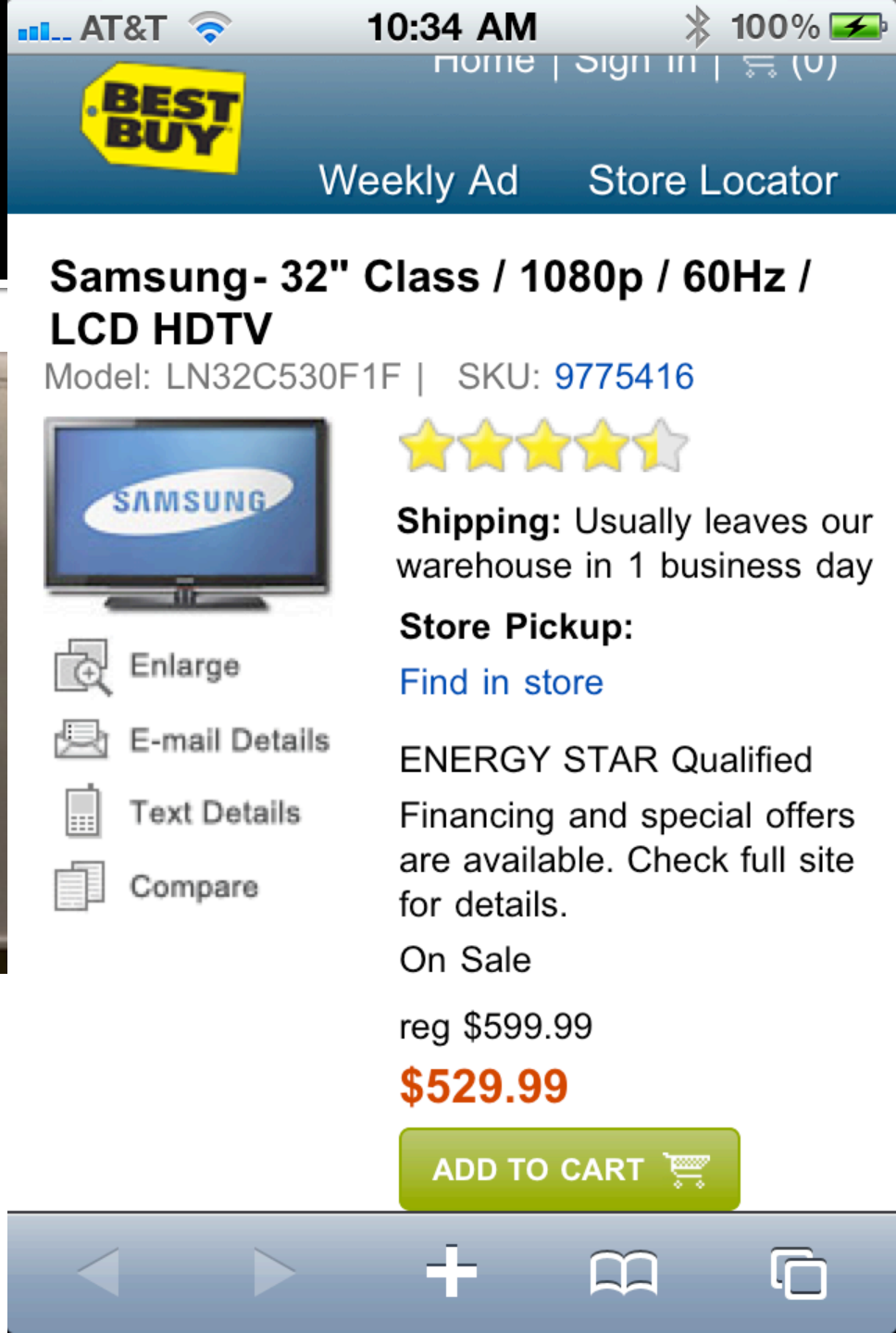
http://blogs.bath.ac.uk/qrcode/

http://www.flickr.com/photos/halfhollowhills/4504965499/

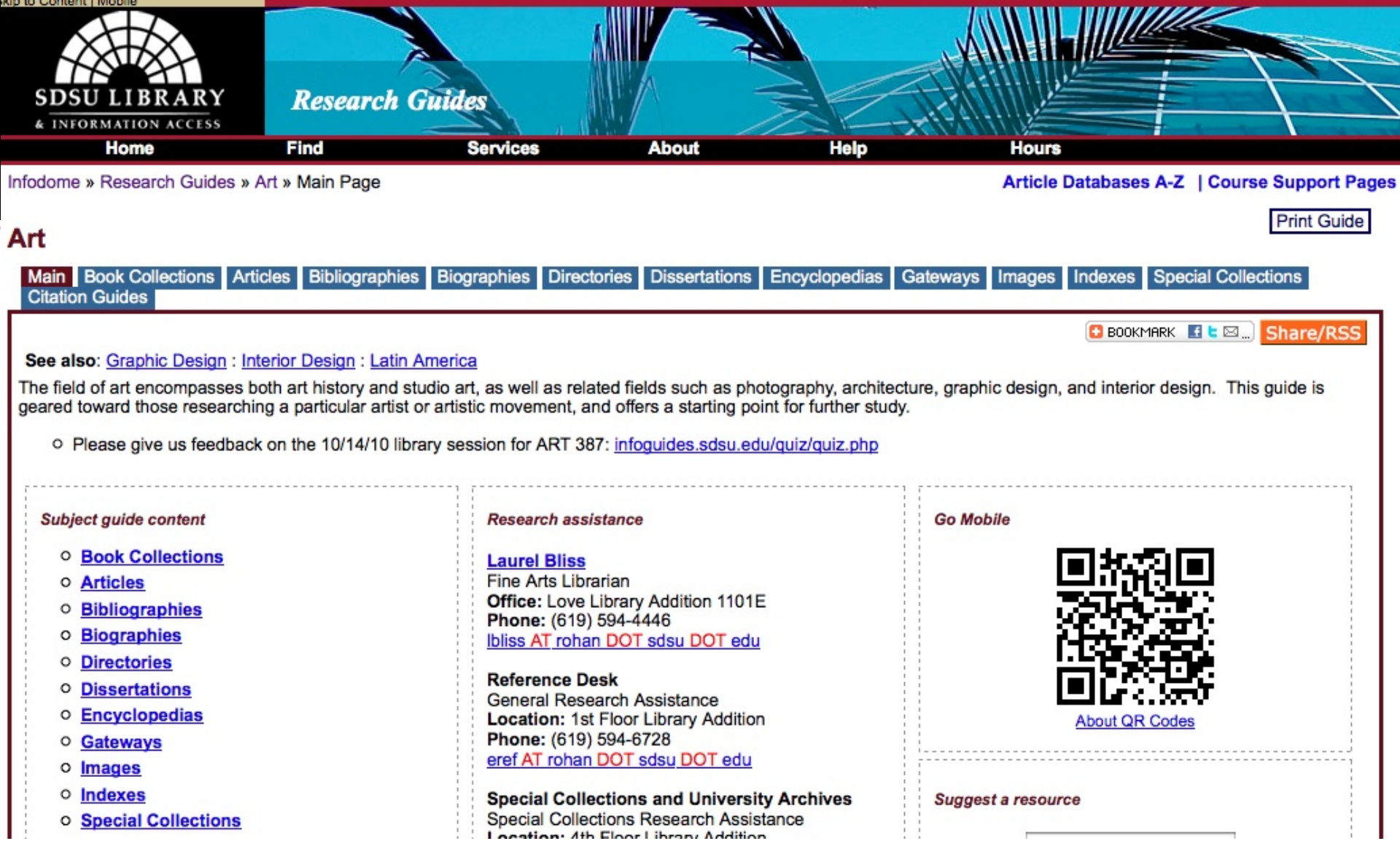



http://www.flickr.com/photos/angels_have_the_phone_box/4928432752/

# Even at Best Buy

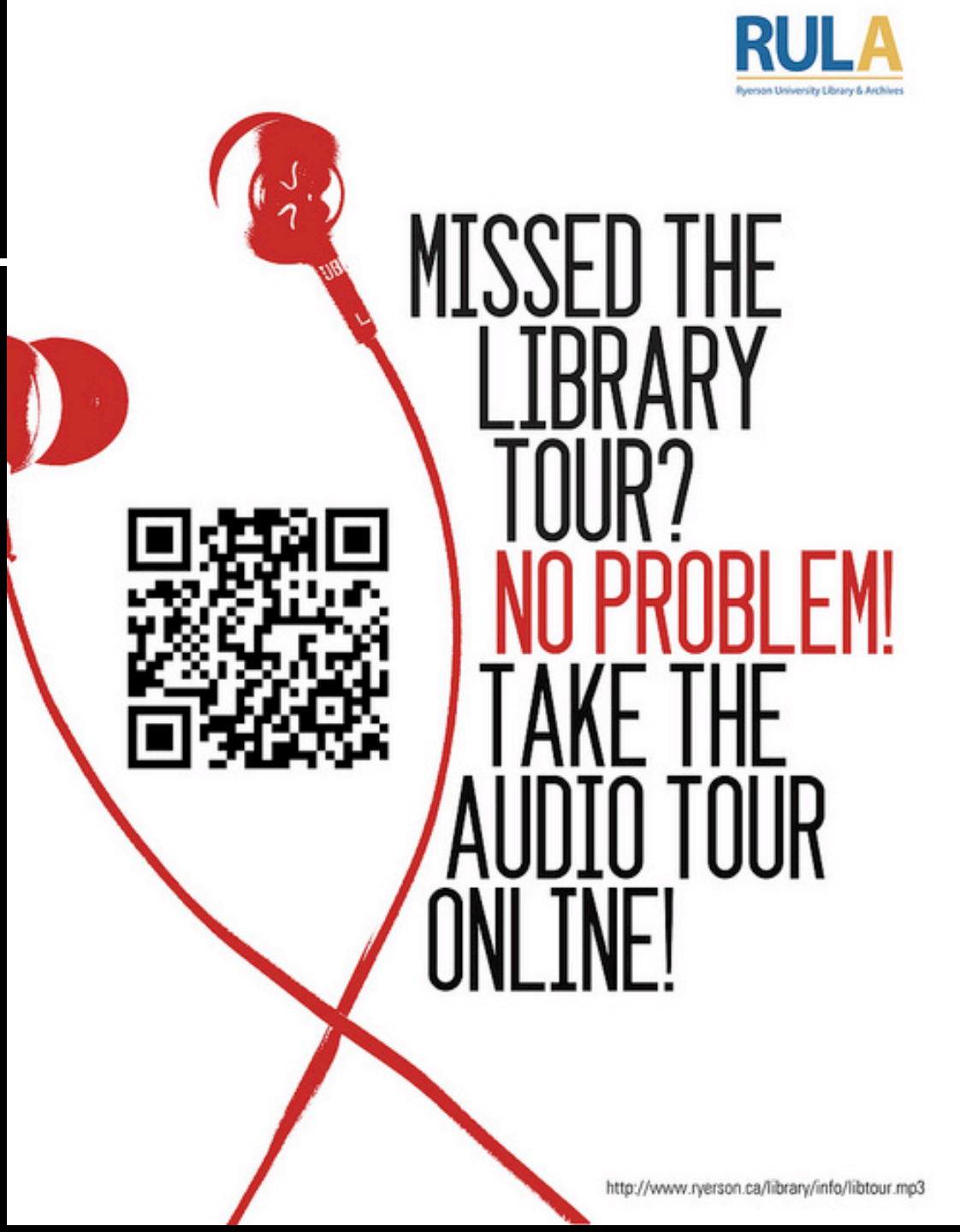



http://highedwebtech.com/2010/09/06/qr-codes-everywhere-but-higher-ed/




http://infoguides.sdsu.edu/sub.php?id=7

http://www.flickr.com/photos/ryersonlibrary/5039468125/



http://www.nytimes.com/2010/10/26/business/media/26adco.html

# And those flashcards…

http://lifehacker.com/5608617/use-qr-codes-for-flashcards-you-cant-cheat-on

# QR code shortcomings

- Tracking
  - Cannot keep stats on who scans, so interaction has to pass through another layer (webpage)
- Limited reach
  - A majority of people are unfamiliar with QR codes and do not know if their phones can read them
  - Increased use in marketing may help bolster awareness
- Doesn't work for the visually impaired

http://www.imediaconnection.com/content/26320.asp

# Things to keep in mind

- Are you linking to mobile-friendly content?
  - And does it play nicely with multiple devices?
- Code Overload

# How do I scan a QR code?

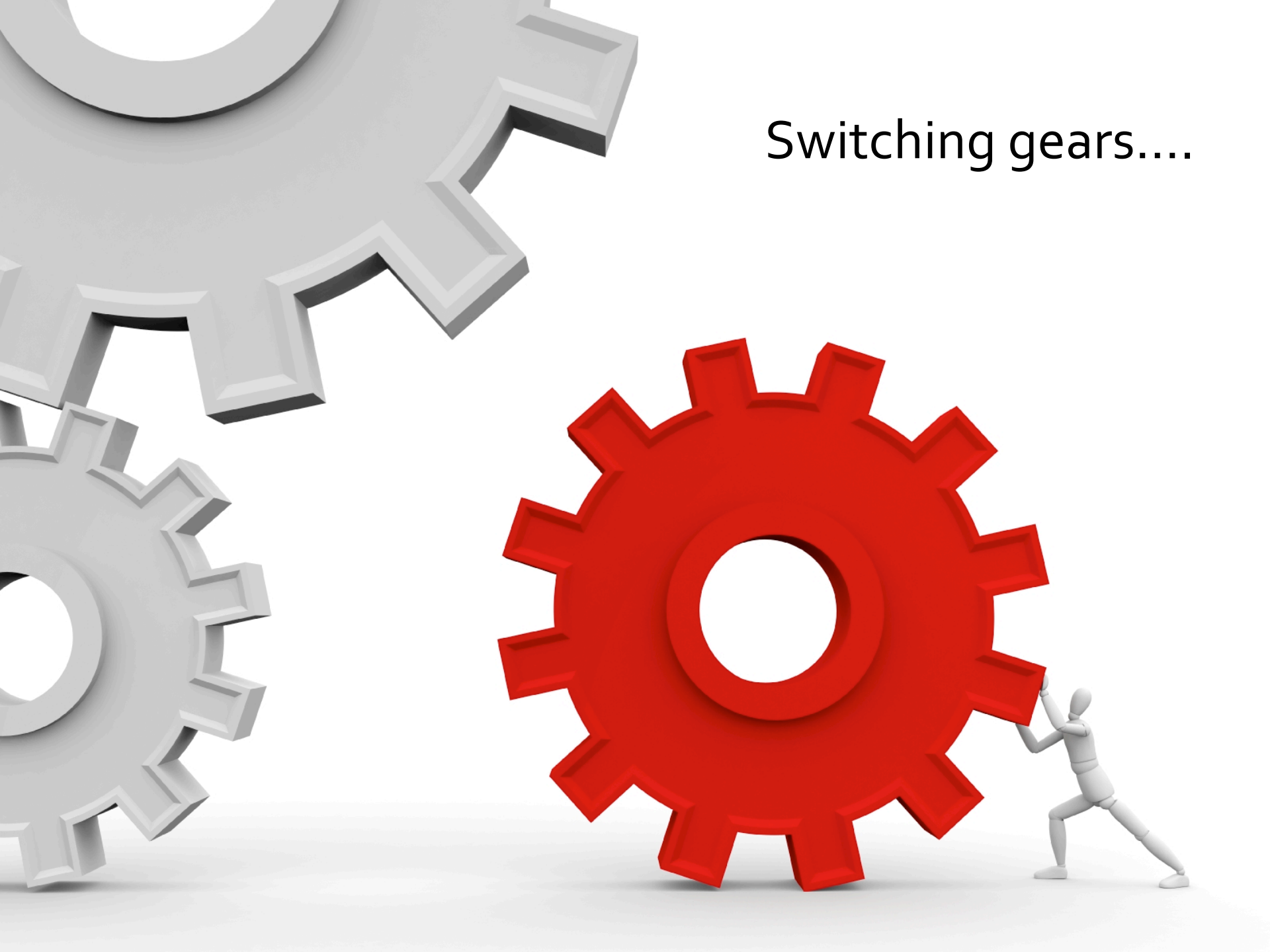
**Step 1:** Get a smartphone.

**Step 2:** Install a barcode scanner app if you don't already have one.

**Step 3:** Take a picture of the QR code using the barcode scanner app.

**Step 4:** Watch what happens. ☺

Switching gears….



# What is augmented reality?

"Augmented reality (AR) is a term for a live direct or indirect view of a physical real-world environment whose elements are *augmented* by virtual computer-generated sensory input such as sound or graphics."
- Wikipedia

http://en.wikipedia.org/wiki/Augmented_reality

# In other words…

- It's a technology that enhances your current perception of reality

Augmented Reality

- combines real and virtual
- is interactive in real time
- is registered in 3D

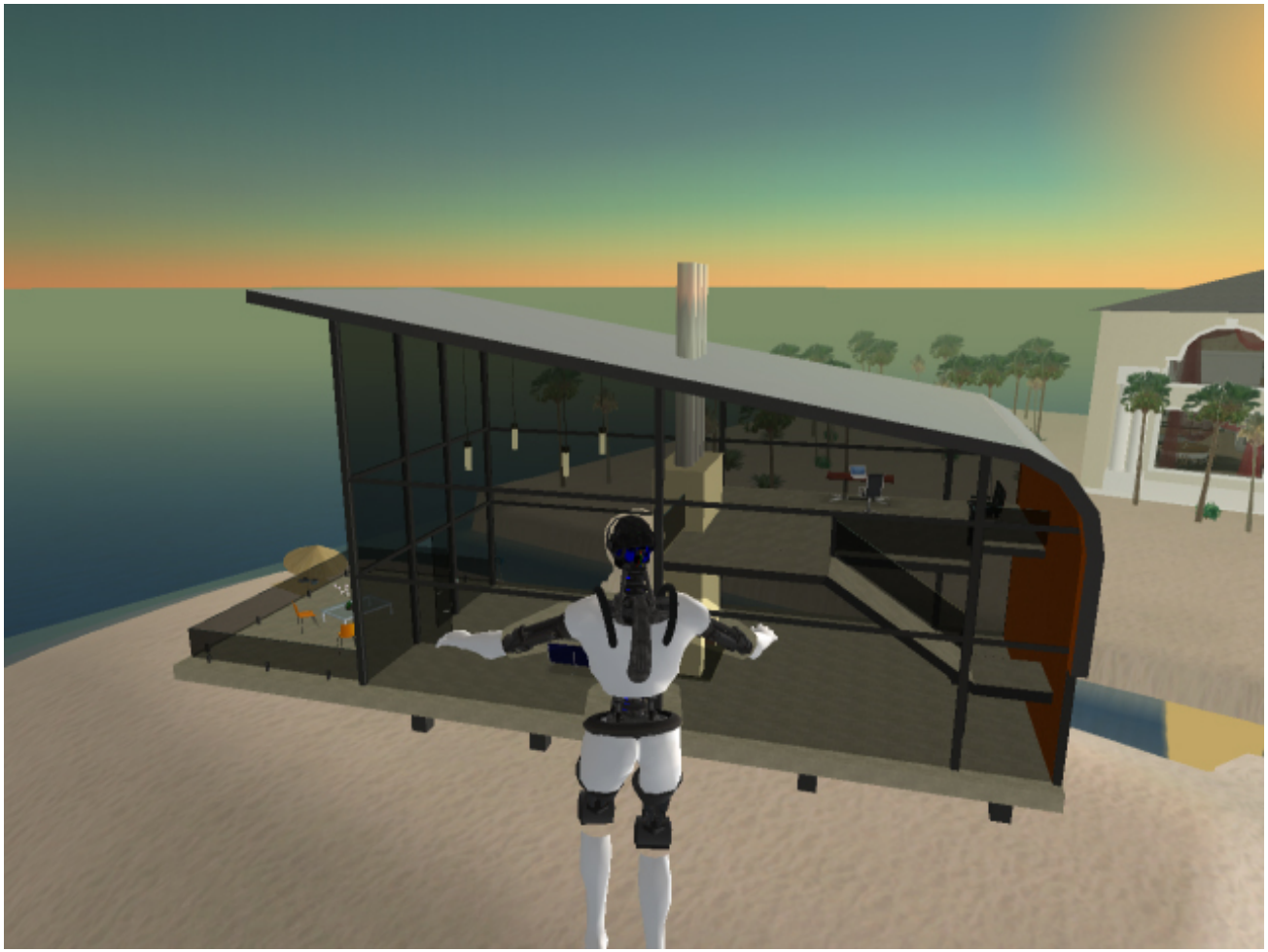
# Terminator vision!

http://motion.tv/files/2009/08/fong5.jpg

# What is augmented reality?

http://commoncraft.com/augmented-reality-video

# It's not VIRTUAL reality



# Augmented football

# Augmented hockey

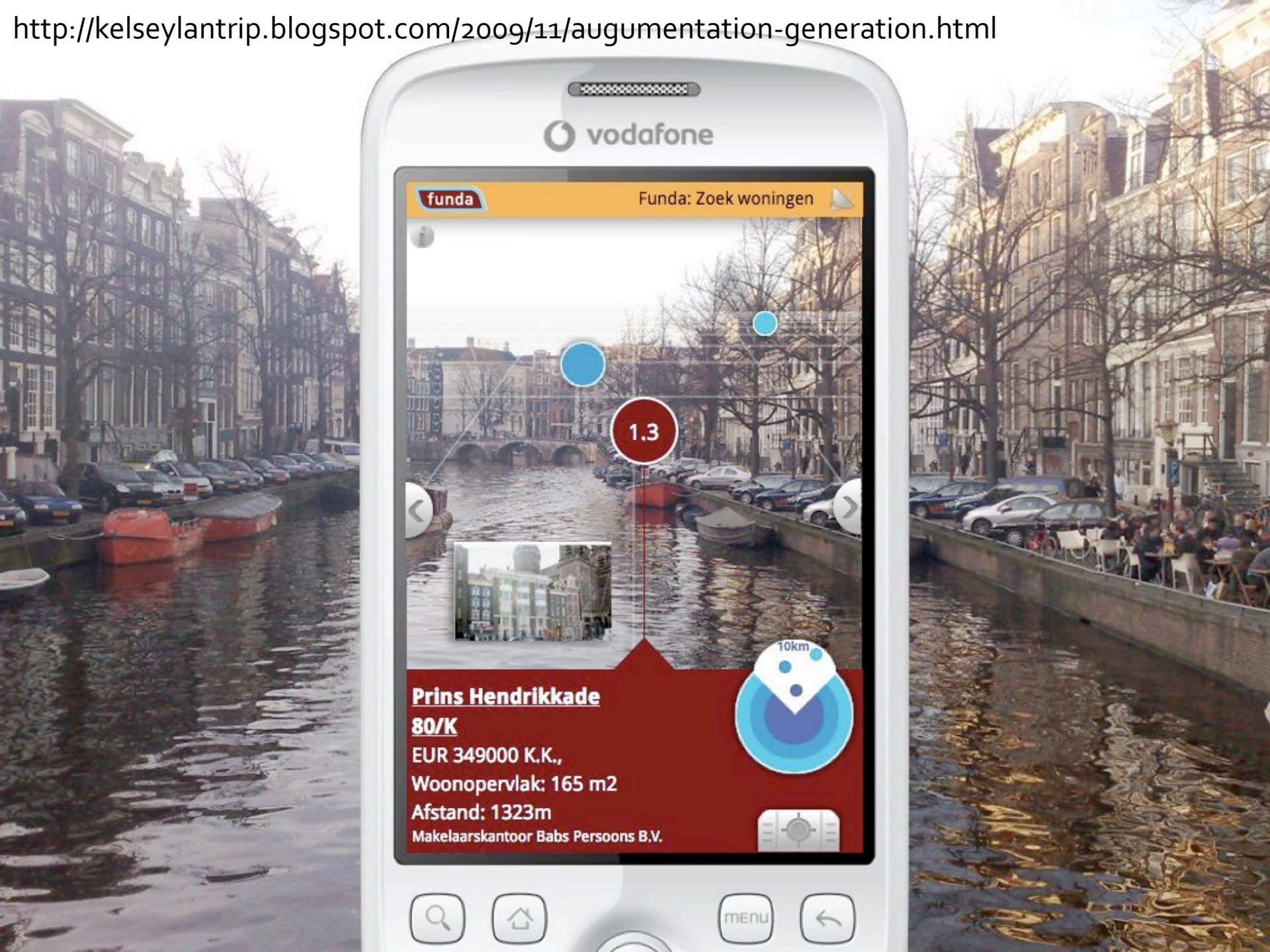
# Augmented baseball cards

http://www.youtube.com/watch?v=YDpCcrF6yFI

# Augmented surroundings

http://en.wikipedia.org/wiki/File:Wikitude.jpg

http://kelseylantrip.blogspot.com/2009/11/augumentation-generation.html



# Augmented sky

http://www.wildcoast.co.za/files/u3/sky_map_090512_main.jpg

# Why AR?

- 2010 Horizon Report:
  - "Market projections for augmented reality on mobile devices predict revenues of $2 million in 2010, rising to several hundred million by 2014 ($350 million, according to ABI Research; Juniper Research's projections are even higher). Augmented reality is poised to enter the mainstream in the consumer sector, and the social, gaming, and location-based applications that are emerging point to a strong potential for educational applications in the next few years."

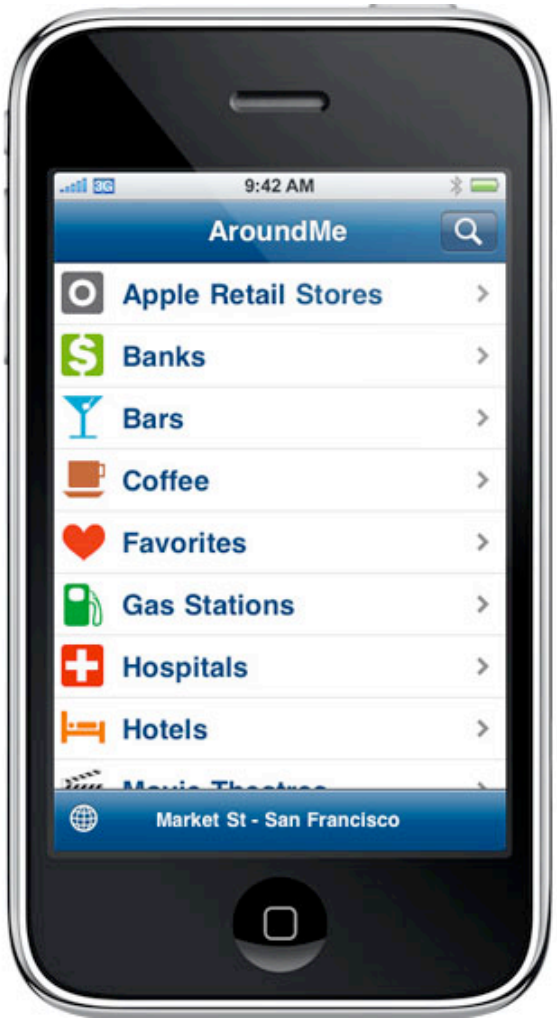
http://wp.nmc.org/horizon2010/

# Potential AR applications

| | |
|---|---|
| **Enhanced Maps** | To help people find their way around campus, see building hours, etc. |
| **Historical / Cultural Tours** | To provide context for historically / culturally significant locations, etc. |
| **Training** | To provide relevant information at point of need; as a simulator to reduce consequences of training mistakes. |
| **Learning Games** | Rich, realistic games to support experiential learning. |
| **Encouraging Conversation** | To see what people are tweeting about, reviewing, etc.; annotating the physical environment. |
| **"X-Ray Vision"** | To expose the inner workings of complex systems such as mechanical devices, the human body, etc. |
| **3D Modeling** | To model architectural designs, etc. |

# Tools and examples

- Yelp "Monocle"
- Wikitude
- Around Me
  - ATMs, bars, coffee, gas stations, etc
- Layar App/Browser
  - Can build your own
  - Browse 400+ layers
  - Many Universities using

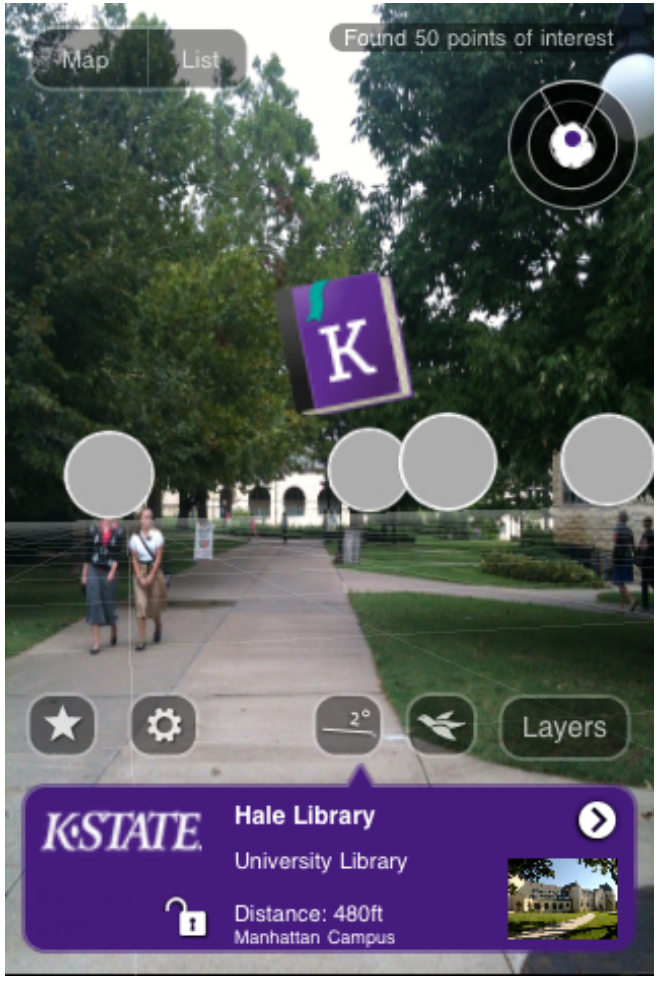



http://laurenpressley.com/library/2010/01/laurens-top-tech-trend-alamw10-alamwttt/

# Imagine it in on campus…

Augmented reality
can make a connection between the
***physical institution***
surrounding you and the
***virtual institution***
on the web

# Layar at Kansas State



http://kstatenews.org/wp-content/uploads/kstatenews.org/2010/09/powercat-enhanced.jpg
http://cdn-3.androidzoom.com/screenshots/120375-2.jpg

# Layar at Kansas State

http://www.youtube.com/watch?v=GS_uz4uMNJo&feature=player_embedded

# Connecting past and present

Augmented reality can make a connection between the ***present day*** and ***historical events*** or highlight ***cultural significance***

# CultureClic

http://static.igeneration.fr/img/2010/03/cultureclic.jpg

# CultureClic

http://www.youtube.com/watch?v=XtJ1ZrPu-oo&feature=player_embedded

# NCSU's WolfWalk

NCSU LIBRARIES

ASK US | MY ACCOUNT | HOURS | FAQ | CHAT NOW!

FIND | GET HELP | SERVICES | ABOUT

Search books, articles, journals, & library website Search

## WolfWalk

### Explore NC State history right on your phone

WolfWalk allows you to explore North Carolina State University's campus history on your phone. WolfWalk has information on 90 different sites on campus, with images that trace the site's history, courtesy of the NCSU Libraries Special Collections Research Center. WolfWalk will also show you information about the sites closest to you, depending on the capabilities of your phone.

Get WolfWalk for iPhone

Visit WolfWalk Mobile Web

### Send WolfWalk to my phone

Select provider... 999-999-9999 Send Text Message

We will not store or share your number. Sending messages is free, but your mobile provider may charge you to receive messages. Please check with your provider for details.

### Need support? Have a suggestion for us?

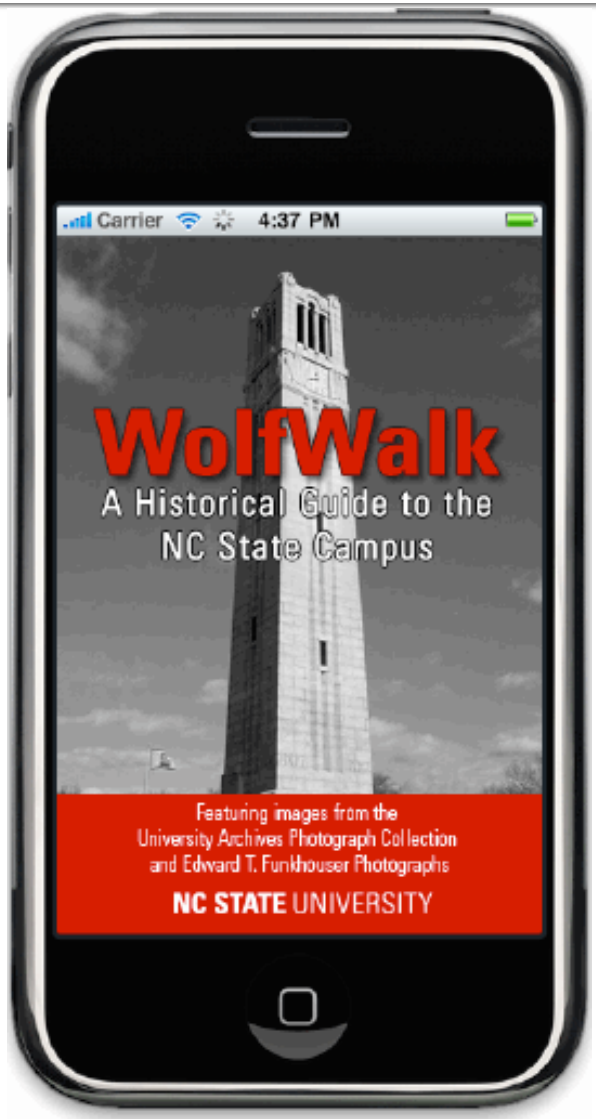
If you have any questions about WolfWalk or have suggestions for us, send a message to wolfwalk@lists.ncsu.edu.

### Explore more NC State history

To find out more about NC State's history, visit Historical State. Historical State is the home of our comprehensive catalog of historical images of NC State, and contains all of the images used in WolfWalk. Historical State also features course catalogs, and a near-complete run of the *Agromeck*, NC State's yearbook.

http://www.lib.ncsu.edu/wolfwalk/

# Screenshots from WolfWalk

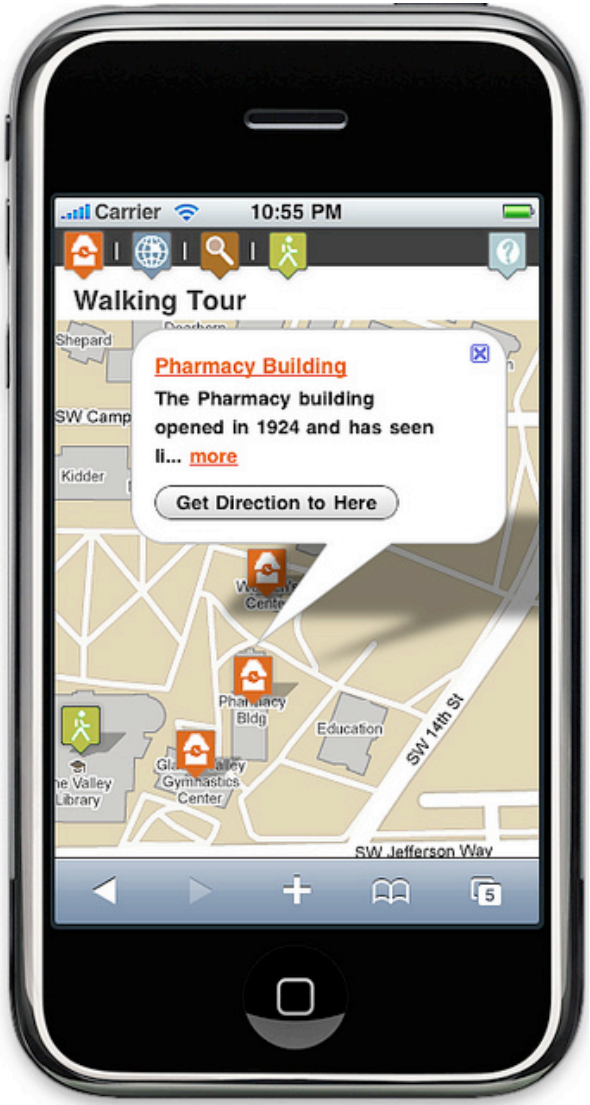


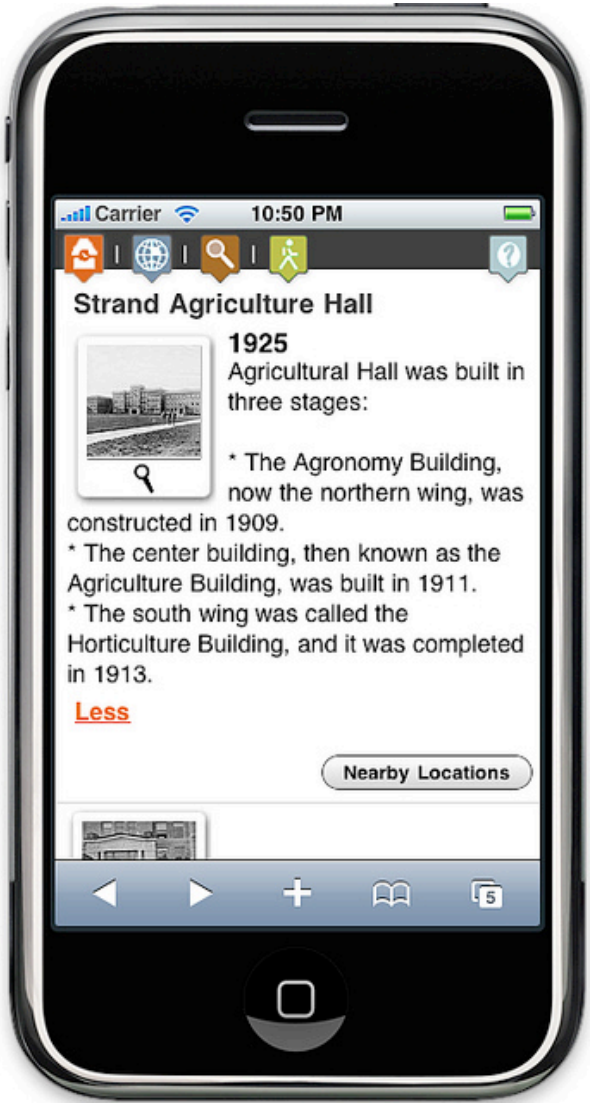
# OSU's BeaverTracks

- BeaverTracks is an interactive mobile guide and walking tour of Oregon State University's historical locations.
- At each of the 22 locations, you get a brief history and can browse a catalog of historic images.
- Depending on your mobile device you can also take a walking tour of the historic sites.

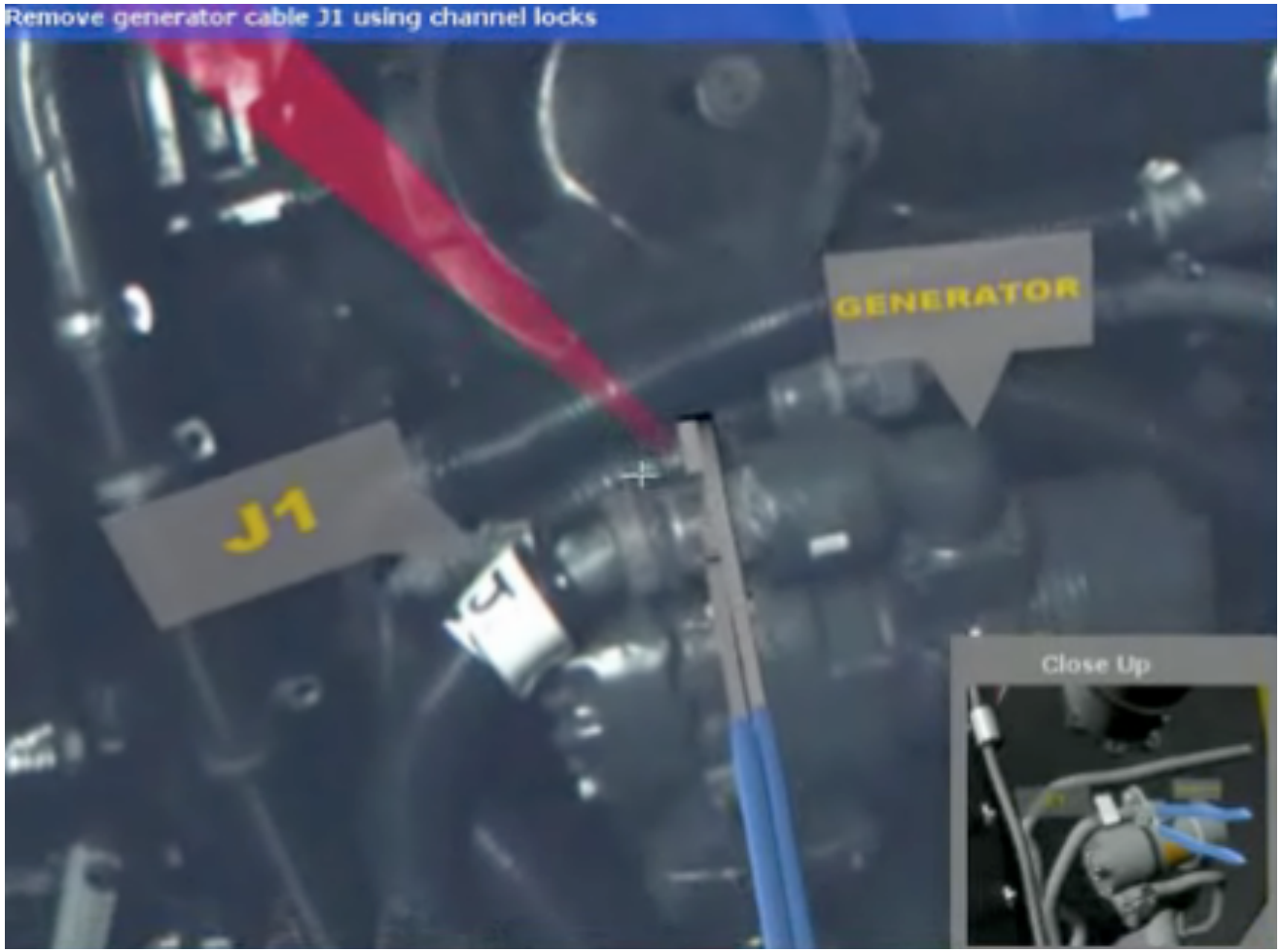
http://tour.library.oregonstate.edu/

# Screenshots from BeaverTracks



# U.S. Marines' ARMAR




http://www.psfk.com/2009/10/marine-mechanics-work-50-faster-using-augmented-reality-goggles.html

# ARIS – U. Wisconsin

"STEEL is a simple game about mining and smelting metals. A number of virtual mines (copper, iron and carbon) are located all around downtown Madison, and players collect the metals for profit."

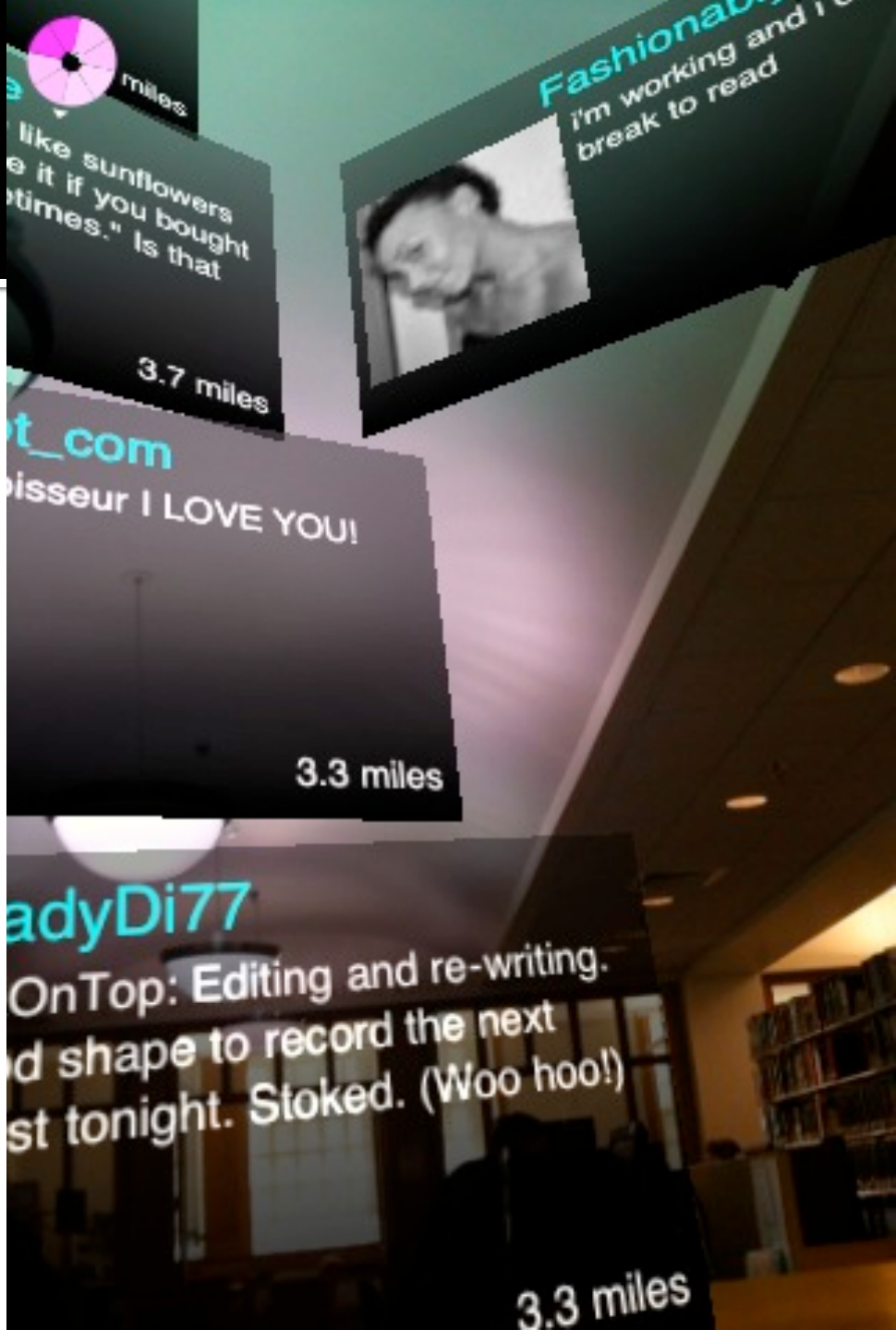
http://arisgames.org/featured/steel/

# MIT Teacher Education Program

- Environmental Detectives: students play the role of environmental engineers who are presented with the following scenario at the beginning of the simulation:
  - *During the construction of the underground garage of the new Stata Center (a big and controversial construction project) significant amounts of water are pumped up from the ground in order to lower the groundwater table so that the garage can be constructed in a dry environment. As a matter of regulation the water is tested for the 25 most commonly found chemicals in groundwater at hazardous waste sites. As a result of the testing it is discovered that a toxin is present in the extracted water. You call the President of the University to report and he asks, "How dangerous is this toxin? Where did the contamination come from and how widespread is it? Does MIT need to take some action (and what action might this be)? What do you advise?" You promise to call him back within three hours with your advice on the problem.*

http://education.mit.edu/drupal/ar/projects#ed

# Nearby Tweets




http://www.flickr.com/photos/lauren_pressley/4287888853/

# Leaving helpful notes

http://www.flickr.com/photos/librariesrock/4153870911/in/pool-79623799@Noo/

# Augmented anatomy

http://technoccult.net/wp-content/uploads/2010/01/medicalAR.jpg

# Nestor – 2D to 3D

http://www.youtube.com/watch?v=M4qZ0GLO5_A&feature=player_embedded

# Additional Resources

Wikipedia overviews

- http://en.wikipedia.org/wiki/QR_Code
- http://en.wikipedia.org/wiki/Augmented_reality

- http://wik.ed.uiuc.edu/index.php/Augmented_Reality_in_Education

# Thank you!

**Rachel Vacek**
Head of Web Services
University of Houston Libraries
**Email:** vacekrae@gmail.com

**Anita Riley**
Digital & Web Projects Fellow
University of Houston Libraries
**Email:** anita.riley@gmail.com

**Presentation available online:**
slideshare.net/anitazavrrr