

Seeing the Library through the Terminator's Eyes: Augmented Reality



Rachel Vacek, @vacekrae

Anita Riley, @anitazavrrr

University of Houston Libraries

Amigos Member Conference

May 18-19, 2011

What is Augmented Reality?

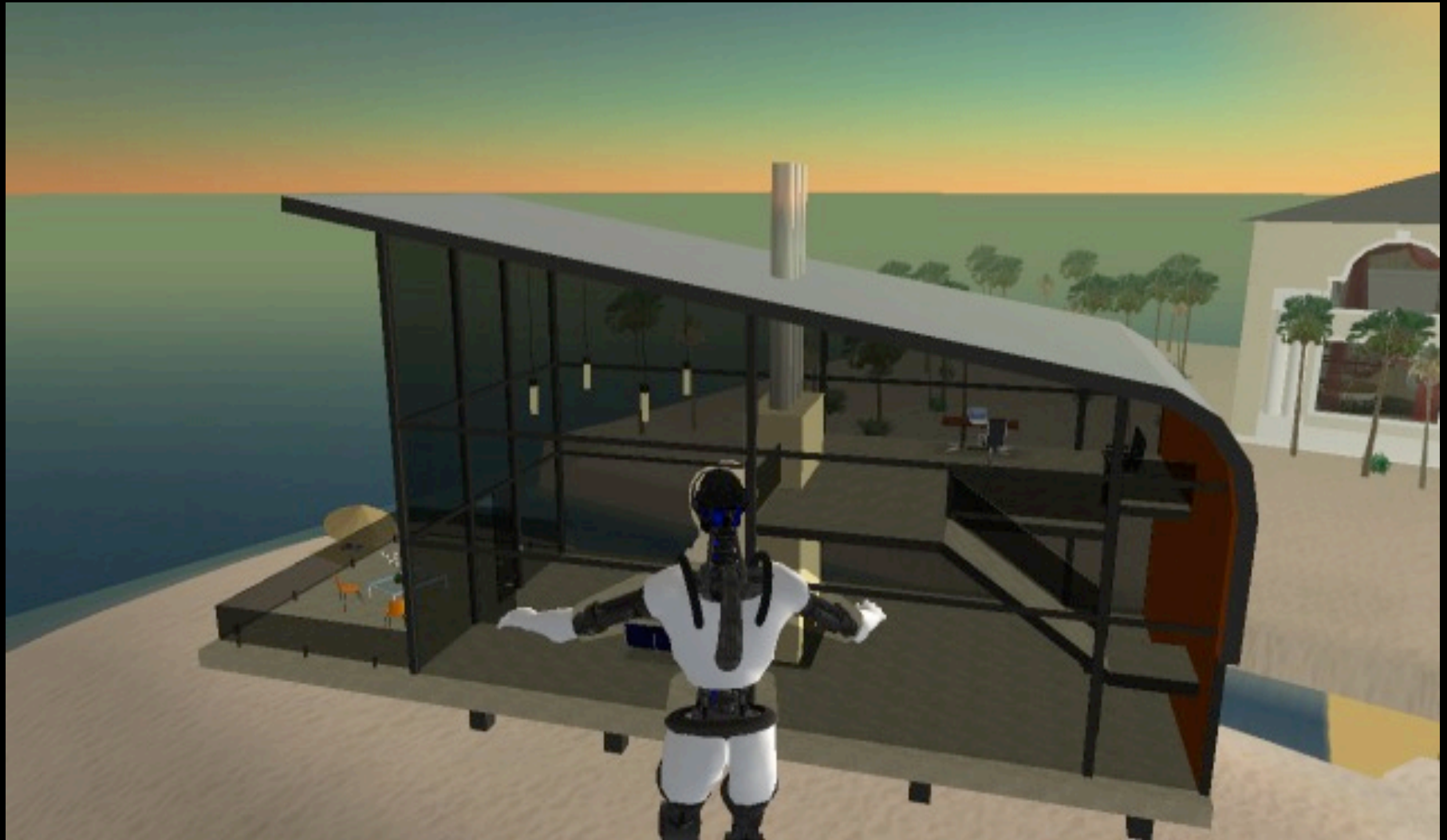
It's a technology that *enhances* your current perception of reality.

Augmented Reality:

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



Not Virtual Reality



Terminator Vision!




SCHWARZENEGGER
THE
TERMINATOR

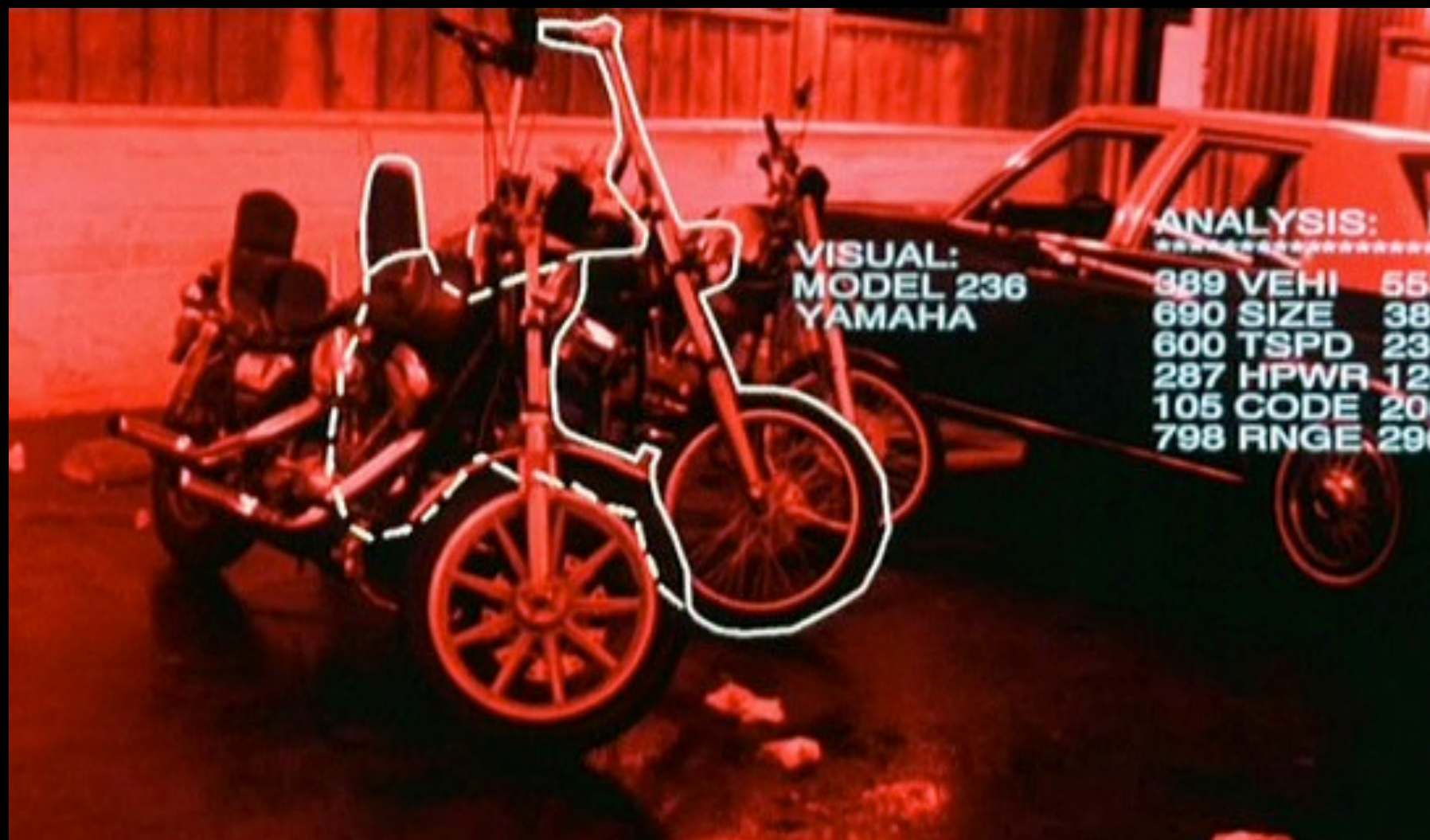




SCAN MODE 43894
SIZE ASSESSMENT

ASSESSMENT COMPLETE
FIT PROBABILITY 0.99
RESET TO ACQUISITION

MATCH 



VISUAL:
MODEL 236
YAMAHA

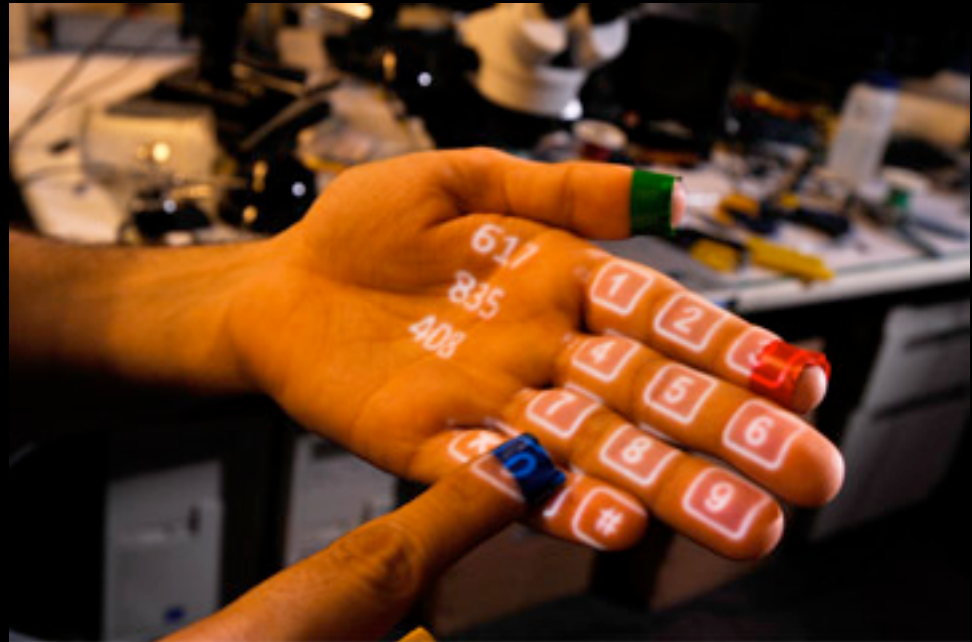
ANALYSIS:

889	VEHI	553
690	SIZE	380
600	TSPD	230
287	HPWR	120
105	CODE	200
798	RNGE	296

How does AR work?

Common Components

- A smartphone
- A video camera
- Audio
- A projector
- Headgear
- Mirrors
- People!

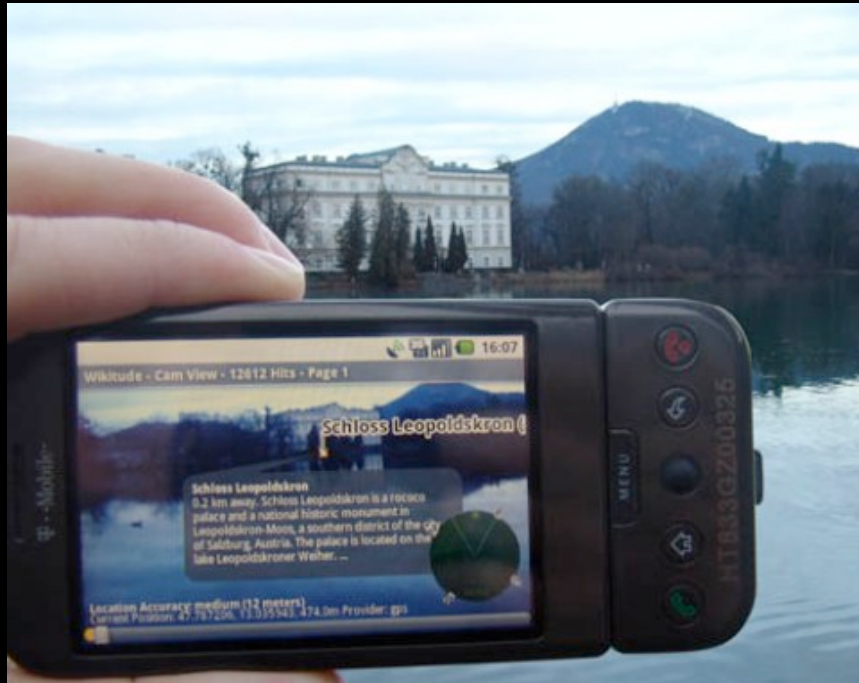


AR Displays

- Head-attached displays
 - Optical/Video HDM, Retinal, Lenses, Projector
- Handheld displays
 - Glass trough, Tablet, Smartphone
- Spatial displays
 - Desktop PC, Notebook, Holographic Projection



Smartphone Requirements



- GPS: *Where am I?*
- Compass: *What direction am I facing?*
- Camera: *What do I see in the real world?*
- Accelerometer: *How is my phone oriented?*
- Internet Connection: *Connect to the digital world*
- Optional: Gyroscope: *For a smoother experience*

Why is AR important?

- Encourages interaction
- Creates a richer experience
- Extends the context for understanding the real world
- Improve training materials
- Makes specialized content more accessible



In the classroom...

- Brings experiential and location-based learning to people by supplementing existing worlds rather than creating new ones
- Students take an active role in their own learning
- Extends learning beyond libraries and classrooms to the places where people live



Challenges of AR

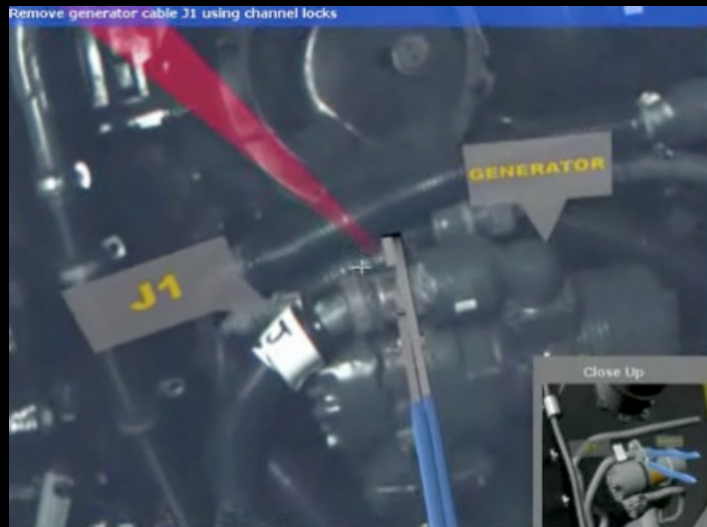
Challenges

- Privacy
- Slow to take off – many people don't know what it is yet
- Have to create content or layer of info for each application
- Needs interoperability
- Requires built-in compass or GPS tools
- Ergonomics
- Displays – needing appropriate lighting
- Technology can be complicated

Who is using AR?

Everyone!

- Sporting events
- Games
- Military
- And even libraries!




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.

Or social applications



NCSU's WolfWalk

 **NCSU LIBRARIES**

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

FINDGET HELPSERVICESABOUT


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.



Miami University

- MU Augmented Reality Research Group
- ShelvAR reads a special spine tag that corresponds to each book's call number and automatically tells the user which books are out of place, and where they need to go.



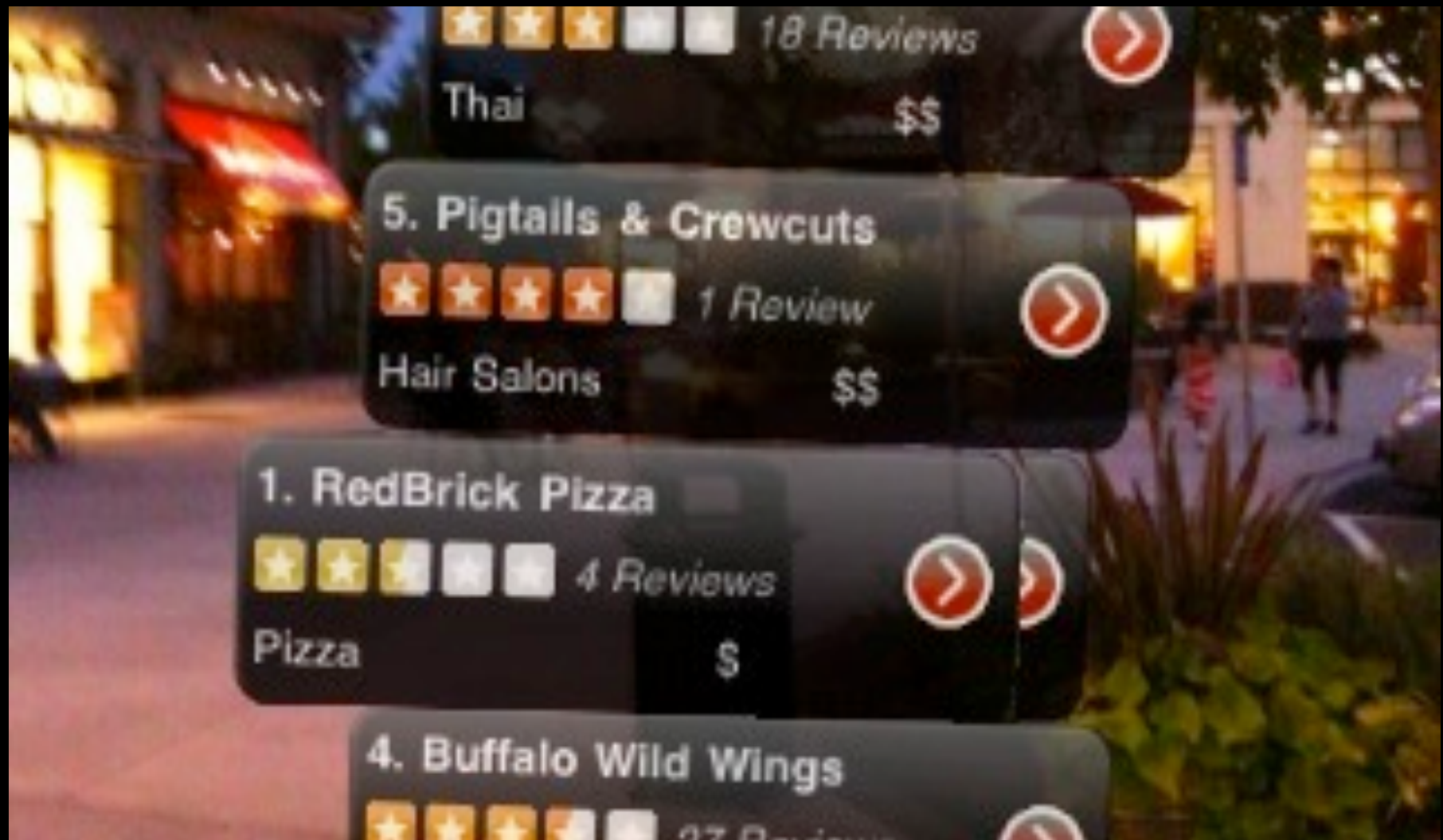
AR Services

Services

- Yelp “Monocle”
- Layar
- Wikitude
- Junaio
- Hoppala Augmentation



Yelp “Monocle”



Layar



Layers

Download

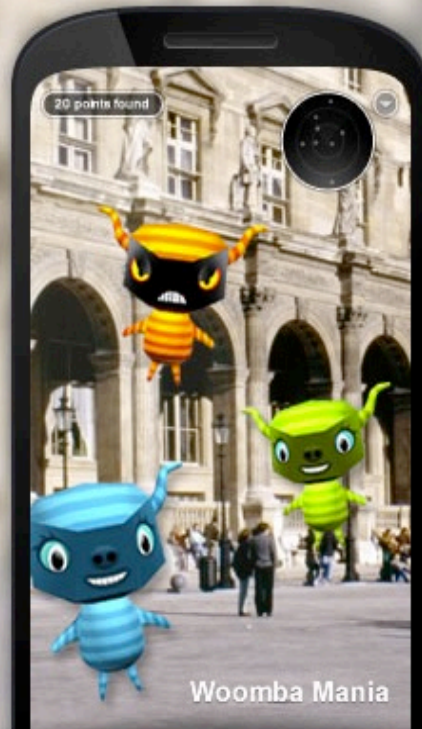
Create

Blog

Support

Jobs

Search Layar.com...



See the world



Download Layar

Available for the following devices:

iPhone



Available on the iPhone
App Store

ANDROID









ovi NOKIA

A beautiful, fun augmented reality app that shows you the things you can't see

www.layar.com

Android Downloads



		# of downloads	Rating
<u>Layar</u>		1M - 5M	
<u>/ikitude</u>		100k - 500k	
<u>Junaio</u>		50k - 100k	

Layar Layers

[Layers](#) [Download](#) [Create](#) [Blog](#) [Support](#) [Jobs](#)

[Home](#) » [Layers](#) » **Dignowitty Hill Cultural History**


[all layers](#)

Dignowitty Hill Cultural History


Publisher	City of San Antonio Office of Cultural Affairs
Category	Local information, Charity & Community, Tourist information
Price	Free
Countries	United States of America

s of Historical Significance on the East Side of San Antonio. Should include residences, factories, markets, and churches.

from <http://2009cdsummit.wordpress.com/> and Beyond the Alamo FF
Good Discovery Tours Guidebook copy: East Side / Ellis Alley © 2002 City of San Antonio, Office of Cultural Affairs Beyond the Alamo FF Program All rights reserved. May be downloaded for personal use only.



 Be the first of your friends to like this.

To view the Dignowitty Hill Cultural History layer, download the Layar app for your mobile device!

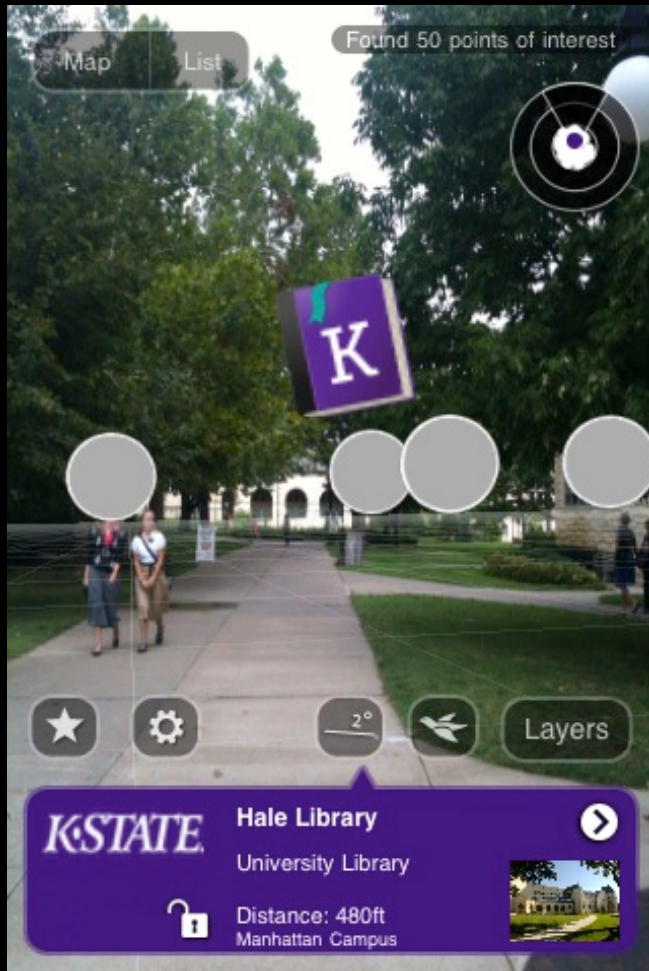
 **Download Layar**
Available for the following devices:

iPhone

Available on the iPhone App Store

ANDROID   NOKIA

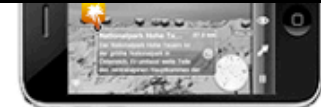
Layar at Kansas State



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

Wikitude World Browser

WIKITUDE



Home

Wikitude

Wikitude Worlds

Developer

Blog

Press

Wikitude World Browser

Wikitude.me

Download now



Discover the world around you with Wikitude World Browser. Open Wikitude's camera view to see fun content and information projected onto your screen.

The content comes from hundreds of different sources like Starbucks, Youtube, Qype and Wikipedia. We call these "Worlds", i.e. "Starbucks World", "Youtube World" etc.

"Download Wikitude"
and Discover Your World now!



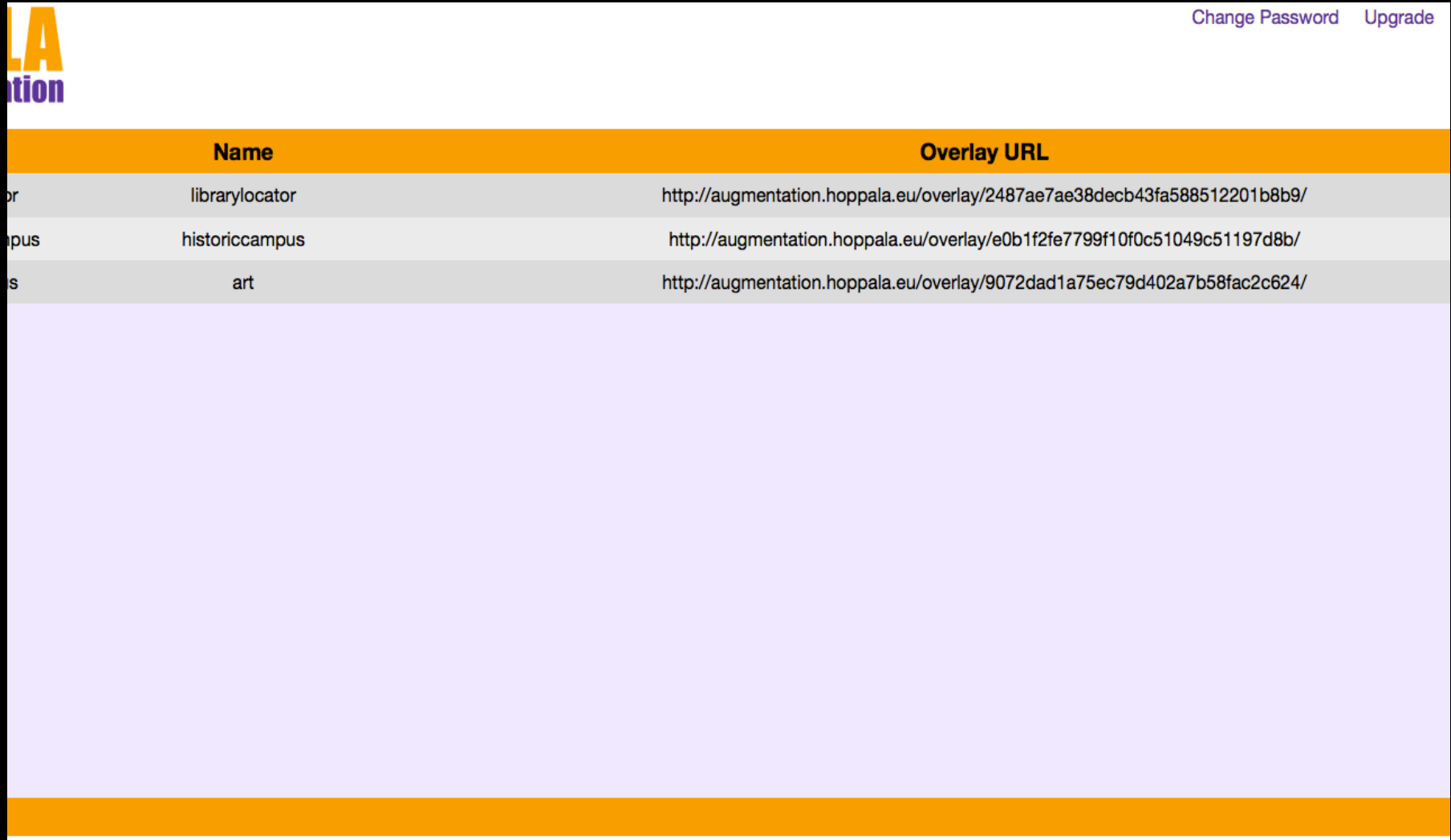
Building an AR layer

Your secret AR weapon

- Augmentation, by Hoppala
 - <http://www.hoppala-agency.com/>



Augmentation dashboard



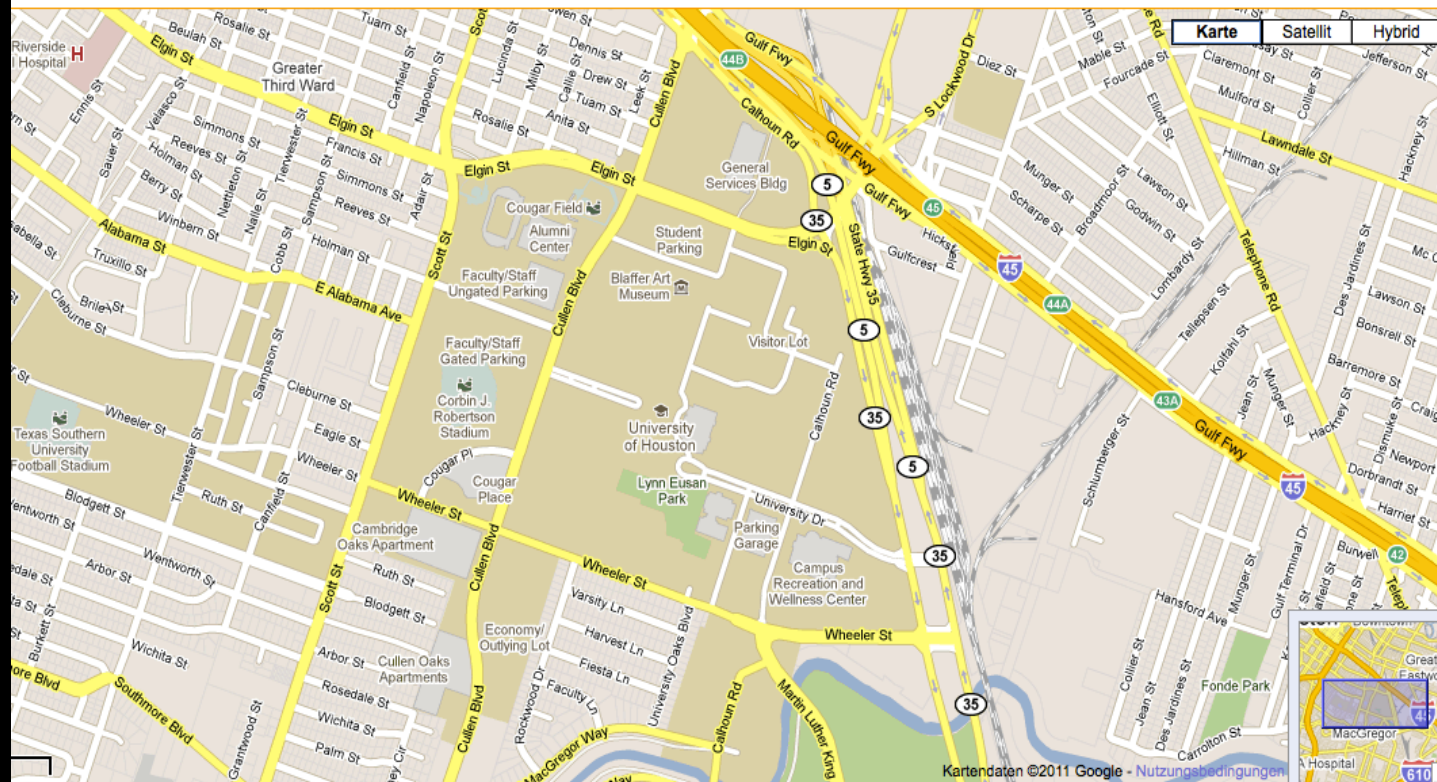
The image shows a web interface for an 'Augmentation dashboard'. At the top left is a logo with the letters 'LA' in orange and 'tion' in purple. At the top right are two links: 'Change Password' and 'Upgrade'. Below these is a table with two columns: 'Name' and 'Overlay URL'. The table has three rows of data. Below the table is a large light purple rectangular area, and at the very bottom is an orange horizontal bar.

Name		Overlay URL
br	librarylocator	http://augmentation.hoppala.eu/overlay/2487ae7ae38decb43fa588512201b8b9/
pus	historiccampus	http://augmentation.hoppala.eu/overlay/e0b1f2fe7799f10f0c51049c51197d8b/
s	art	http://augmentation.hoppala.eu/overlay/9072dad1a75ec79d402a7b58fac2c624/

New overlay

ALA
ntation

[Dashboard](#) [Upgrade](#)



Enter address

[Go there](#)

[Add augment](#)


very convenient size help cover my personal costs in keeping this site going.
Contribution via PayPal is easy, safe, and secure. Thank you!

LA tion

address

Add augme


General tab

Title	<input type="text" value="Untitled"/>	
Description 1	<input type="text"/>	
Description 2	<input type="text"/>	
Description 3	<input type="text"/>	
Thumbnail	<div><div><div></div></div><div></div><div></div></div>	
	<input type="text"/>	<input type="button" value="Browse..."/> <input type="button" value="Add"/>
 Footnote	<input type="text" value="(powered by www.hoppala-agency.com)"/>	
Filter value	<input type="text"/>	

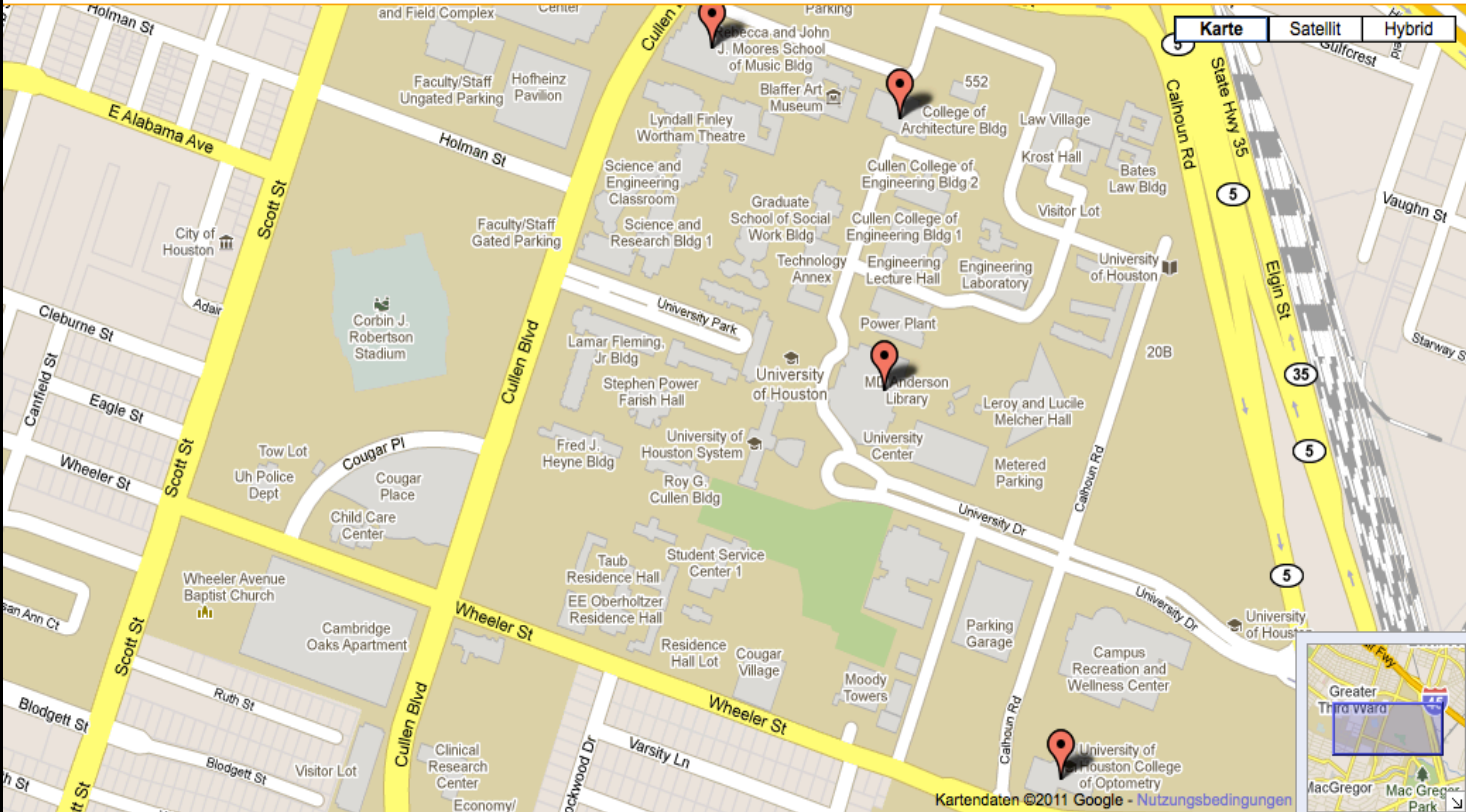
Location tab

Address	<input type="text"/>	<input type="button" value="Geocode"/>
Latitude	<input type="text" value="29.722644"/>	
Longitude	<input type="text" value="-95.342187"/>	
Altitude	<input type="text" value="0"/> (in meters)	Relative <input type="checkbox"/>

Presto! Overlay!



[Dashboard](#) [Upgrade](#)




[Karte](#) [Satellit](#) [Hybrid](#)


address

[Go there](#)


[Add augmented reality](#)




M.D. Anderson Library
The main campus library
<http://m.lib.uh.edu>
(powered by www.ho)



Music Library
Branch library
(powered by www.ho)



Architecture Library
Branch Library
(powered by www.ho)



Optometry Branch Library

The Future of AR

AR is here to stay

- Devices are getting smaller and more mobile
- Connection speeds are increasing
- Battery life is lasting longer
- More applications are moving to the cloud
- Desire to be more engaged
- Yearn for new visual experiences

Resources

- Layar Tutorials
 - <http://www.slideshare.net/layarmobile>
- Wikipedia Overview
 - http://en.wikipedia.org/wiki/Augmented_reality
- AR in Education
 - http://wik.ed.uiuc.edu/index.php/Augmented_Reality_in_Education

Resources

- Layar introduction for developers
 - <http://www.slideshare.net/layarmobile/layar-introduction-for-developers>
- GPS Motion X (iPhone app)
 - <http://itunes.apple.com/us/app/motionx-gps/id299949744?mt=8>
 - \$0.99 or free lite version

Thank you!



Rachel Vacek

Head of Web Services
University of Houston Libraries
vacekrae@gmail.com

Anita Riley

Digital & Web Projects Fellow
University of Houston Libraries
anita.riley@gmail.com