

ARChicago Presents:

# The State of Augmented Reality



# What is AR

“...**augmented reality**, blurs the line between what's real and what's computer-generated by enhancing what we see, hear, feel and smell.”

Source: <http://www.howstuffworks.com/augmented-reality.htm>

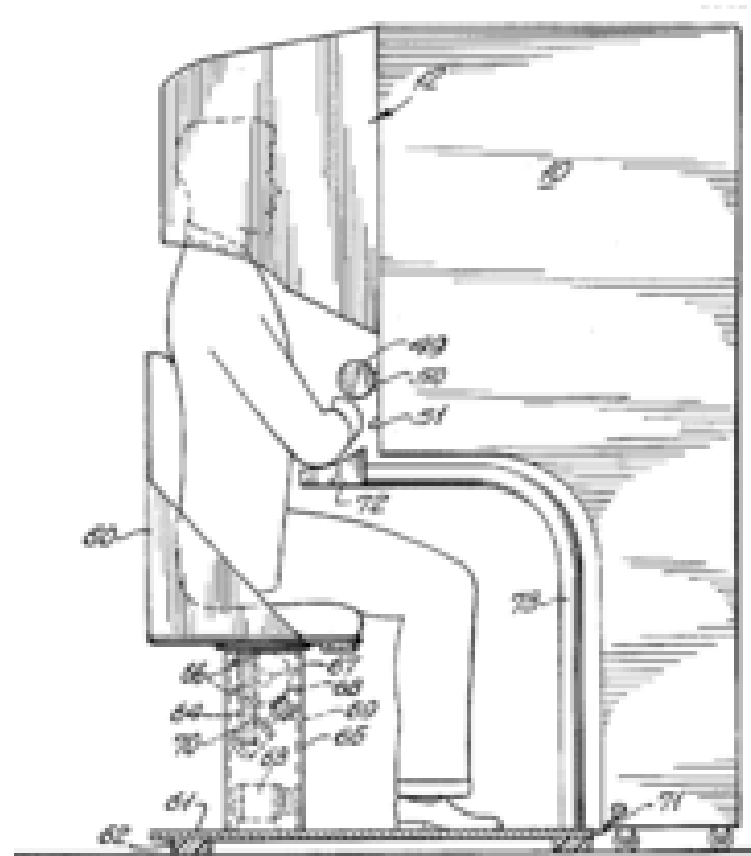
Augmented Reality is the technology that layers digital content over the natural world.



# Brief Wikipedia History of AR



Although there has been a lot of recent buzz about augmented reality, the technology has roots that date back almost 50 years back.



# Brief Wikipedia History of AR



- 1957-62: Morton Heilig, a cinematographer, creates and patents a simulator with visuals, sound, vibration, and smell – “Sensorama”
- 1966: Ivan Sutherland invents the head-mounted display suggesting it was a window into a virtual world.
- 1975: Myron Krueger creates Videoplace that allows users to interact with virtual objects for the first time.



Source: [http://en.wikipedia.org/wiki/Augmented\\_reality](http://en.wikipedia.org/wiki/Augmented_reality)

# Brief Wikipedia History of AR



- 1989: Jaron Lanier coins the phrase Virtual Reality and creates the first commercial business around virtual worlds.
- 1992: Tom Caudell of Boeing coins the phrase **Augmented Reality** helping workers assemble cables into aircraft.
- 1992: L.B. Rosenberg develops one of the first functioning AR systems, VIRTUAL FIXTURES, at the U.S. Air Force Armstrong Labs, and demonstrates benefit on human performance.



Source: [http://en.wikipedia.org/wiki/Augmented\\_reality](http://en.wikipedia.org/wiki/Augmented_reality)

# Brief Wikipedia History of AR



- 1992: Steven Feiner, Blair MacIntyre and Doree Seligmann present first major paper on an AR system prototype, KARMA, at the Graphics Interface conference. Widely cited version of the paper is published in Communications of the ACM next year.
- 1999: Hirokazu Kato develops ARToolKit at the HITLab and it is demonstrated at SIGGRAPH that year.
- 2000: Bruce H. Thomas develops ARQuake, the first outdoor mobile AR game, and is demonstrated in the International Symposium on Wearable Computers.



Source: [http://en.wikipedia.org/wiki/Augmented\\_reality](http://en.wikipedia.org/wiki/Augmented_reality)

# Brief Wikipedia History of AR



- 2008: Wikitude ARTravel Guide launches on Oct. 20, 2008 with the G1 Android phone.
- 2009: AR Toolkit is ported to Adobe Flash as FLARToolkit by Saqoosha, bringing augmented reality to the web browser.



Source: [http://en.wikipedia.org/wiki/Augmented\\_reality](http://en.wikipedia.org/wiki/Augmented_reality)

# Which brings us to today

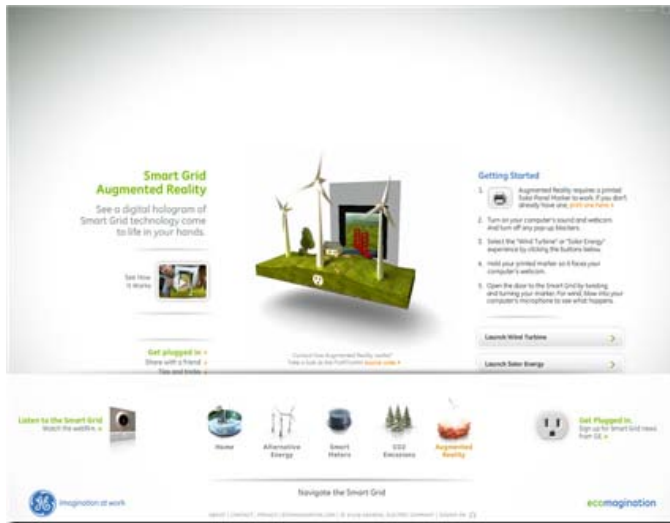
# 2010

Which brings us to today. AR is currently being delivered in a variety of ways. We can categorize these delivery methods into three buckets: Stationary AR, Mobile AR, and Research and Development AR.

# Webcams



The most popular form of stationary AR comes in the form of webcams. There were numerous ad campaigns released in 2009, currently running and in production.



JOHNMAYER.COM BATTLE STUDIES FULL SITE

INSTRUCTIONS

Powered by ADOBE FLASH\*

1. To view this augmented reality, you must have the special Battle Studies icon. You can print this PDF (or open it on your mobile device).
2. Turn on your computer's sound and webcam and turn off any pop-up blockers.
3. Wait for the flash player to load (if prompted, authorize access to your webcam).
4. Make sure the icon on your screen and the image you are holding are completely lined up (and don't move the icon until you see John).

DOWNLOAD THE SPECIAL BATTLE STUDIES ICON

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# Webcams



“The McDonald’s/Avatar promotion delivers augmented reality on an unprecedented global scale,” said Bruno Uzzan, CEO, Total Immersion. “It’s by far the widest use of AR we’ve ever seen, potentially touching hundreds of millions worldwide. At the same time, it signals the arrival of digital experiences, to complement durable goods in the marketplace – a trend we expect will accelerate in the months and years ahead.”



Source: *The Reality of Augmented Reality*, January 5, 2011 by Jarrel Pair at Laboratory 4: Advanced interactive Media Blog [<http://www.augmentedenvironments.org/blair/2010/01/05/>]

# Kiosks



Lego's "Digital Box" shows how a 3D animation on the product box enabled Customers to understand the assembled product.



<http://www.youtube.com/watch?v=8UxWkZtUKaI>

# Digital Signage



Retail fitting rooms demo from Cisco allows shoppers to try on clothes via augmented reality.



<http://www.youtube.com/watch?v=kYpxpgyCcns>

# Window Displays



An advertisement display in theaters for the movie Coraline.



<http://www.youtube.com/watch?v=pOrAaCnkBeg>

# 3G Smartphones



Today's mobile phones equipped with a camera, GPS, compass, accelerometers, and 3D graphics capabilities are AR ready.



# Game Consoles



EyeToy was created for Sony PS2 in 2003. The Sony PS3 This year, Sony is expected to debut motion controller.



<http://www.youtube.com/watch?v=z2wVnMb1F2Y>

# Game Consoles



Not to be out done, Microsoft's next release of Xbox 360: "Project Natal" shows off some exciting new features too!

[http://www.youtube.com/watch?v=RIajnr1tw\\_I](http://www.youtube.com/watch?v=RIajnr1tw_I)

# Whats next?



How will AR change these industries?

- Advertising
- Publishing
- Gaming
- Entertainment
- Social Networking
- Shopping
- Navigation
- Search
- Education/Training

# Advancing AR Experiences



The goal of any AR project is to enhance our reality with elements that improve our daily lives. So much of what we currently see certainly has the “cool” factor, but fails in terms of simplifying or adding value to our current behaviors.

One example of a successful AR project is the US Postal Service’s box measurement application



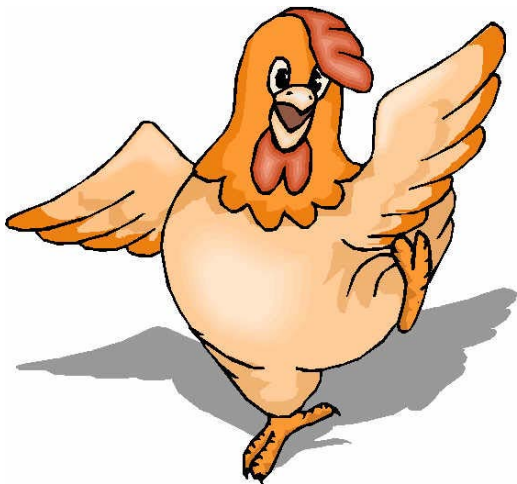
<http://www.youtube.com/watch?v=WpS3LeCiCtc>

# The Chicken & the Egg



In my experience with emerging technologies, we as developers and designers find ourselves caught between the advances in technology and the acceptance of those technologies by audiences.

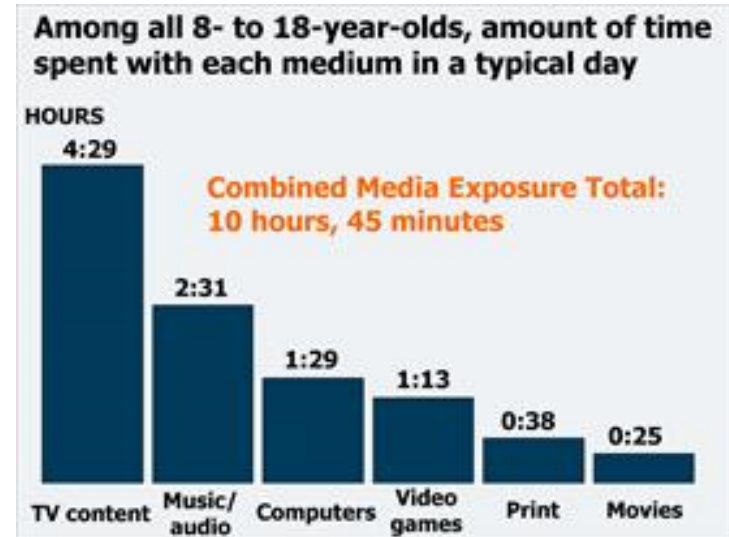
AR has taken a much wider hold on other parts of the world. Audiences here in the US are slowly gravitating toward AR. Popular ad campaigns and gaming have had a huge factor in moving us forward.



# Media Consumption by Youth



A recent report by the Kaiser Family Foundation shows what many of us has already assumed – media consumption by young people is exploding! But it's not that kids of today (future purchases) are consuming more and more media – but how they're doing it. Through their mobile, gaming, and communication devices. Also, they're consuming traditional media in untraditional ways.



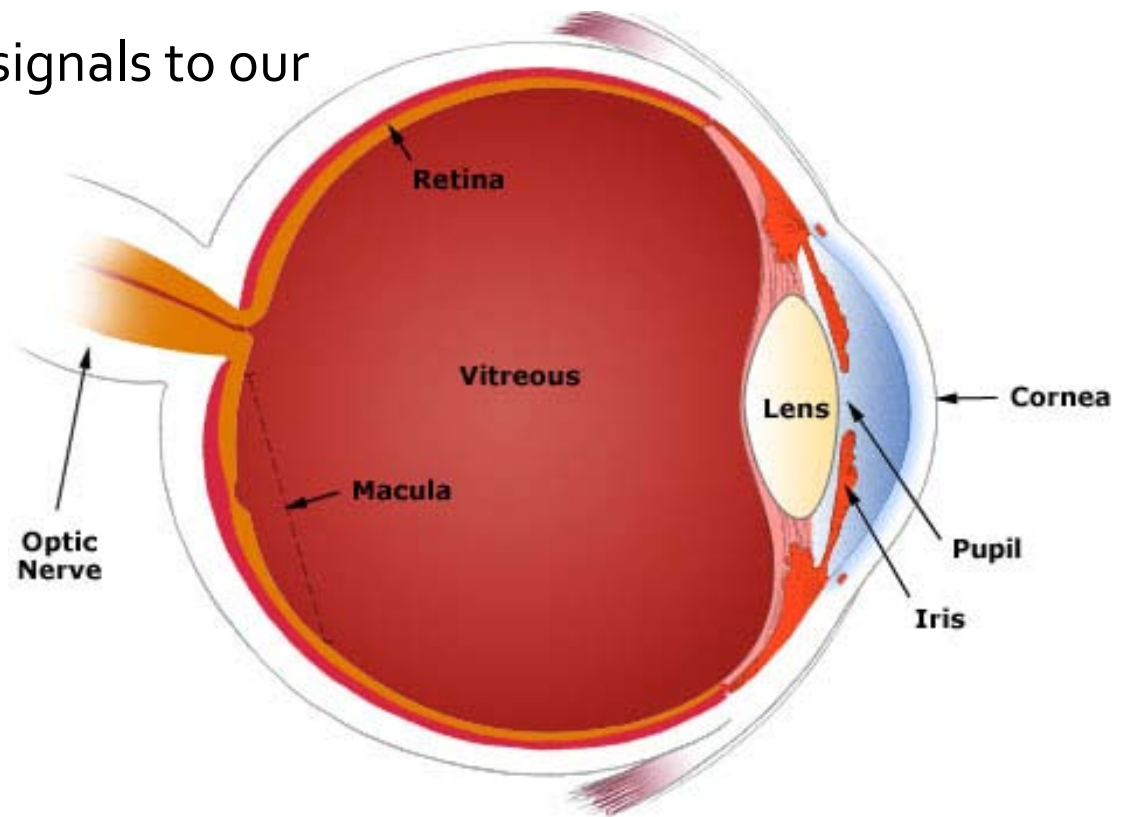
*SOURCE: Source: Kaiser Family Foundation, Generation M2: Media in the Lives of 8- to 18-Year-Olds, 2009.*

# What is Real?



Is real only that which we take in from the physical world through our senses?

Our eyes and ears send signals to our brains...



# Our Brain



... and the neurons messages tell our brains what's real.



So what we take in through our sense can in turn be perceived as reality.

# Virtual Vs Real

For generations now, we have experienced new perceptions of what's real. Once, we actually cut and pasted images on print boards to visualize creative ideas.

But in today's world, Cntrl-C/Cntrl-V are no longer relevant in terms of the physical world. Yet the are reality to us because this is the reality of our times.

