

# **Real World Matters**

## **Perspective and its implications when designing for others**

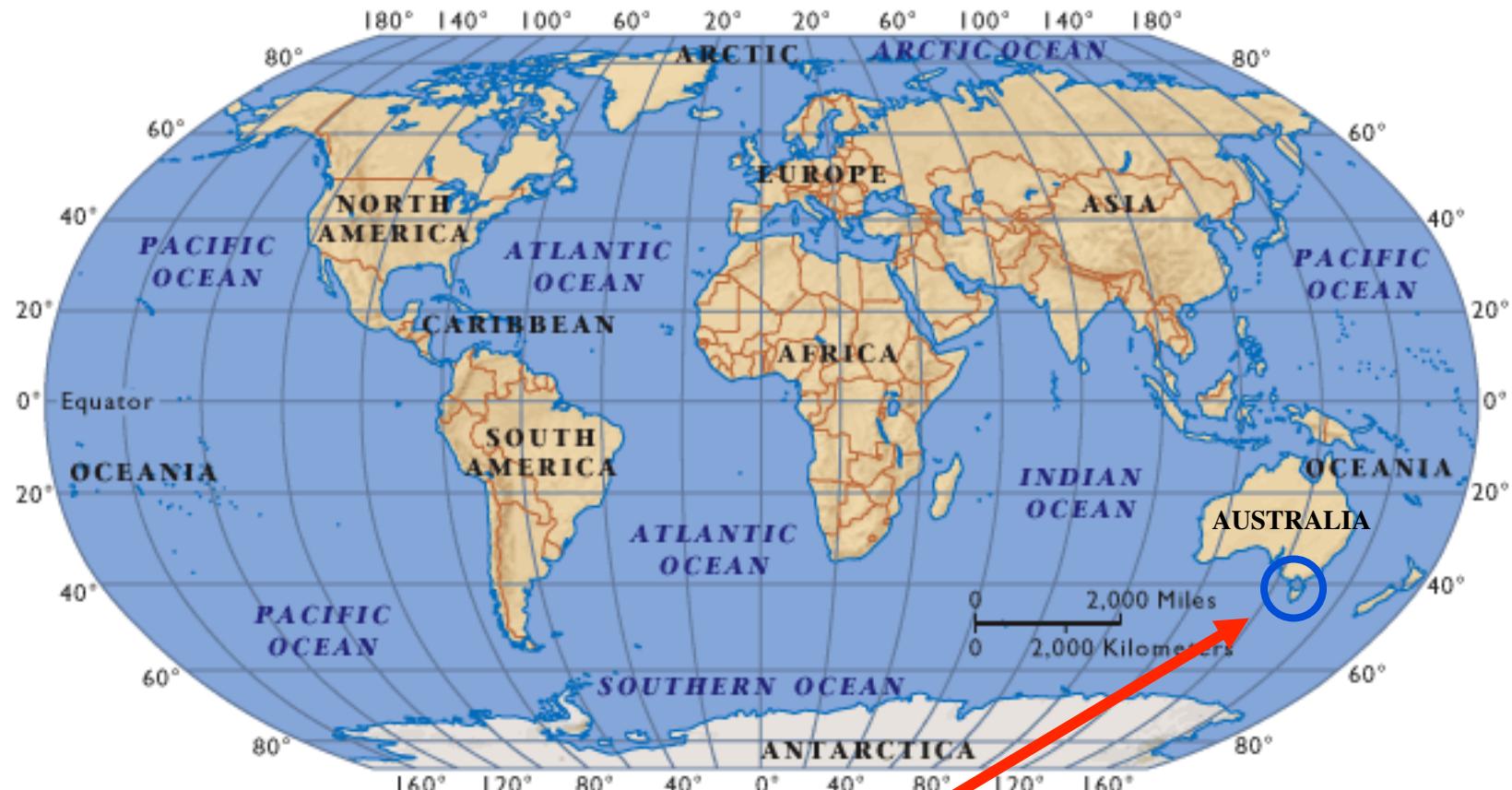
Christopher P. Lueg



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# The World



© MAPQUEST

Tasmania



## Hobart, Tasmania (AU)

Photo (c) Mike Martyn <http://www.pbase.com/tasmart/image/19876439>

# BIG picture

Long-standing interest in ~~interaction~~

Human-Environment Interaction

Information Seeking,  
Embodied information  
science”

Human-Computer Interaction

Interactive Filtering,  
Wayfinding/Navigation,  
People-People-Places (P3)  
Evaluation in HCI/Art/?

Human-~~Environment~~ Interaction,  
mediated by computers [“CMC”]

Online Communities,  
“Digital redlining”, etc.



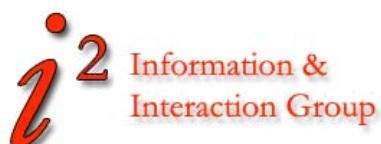
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# “Information”



Library Stacks | University of Illinois Archives  
[cooper.library.uiuc.edu](http://cooper.library.uiuc.edu)



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# “Information”

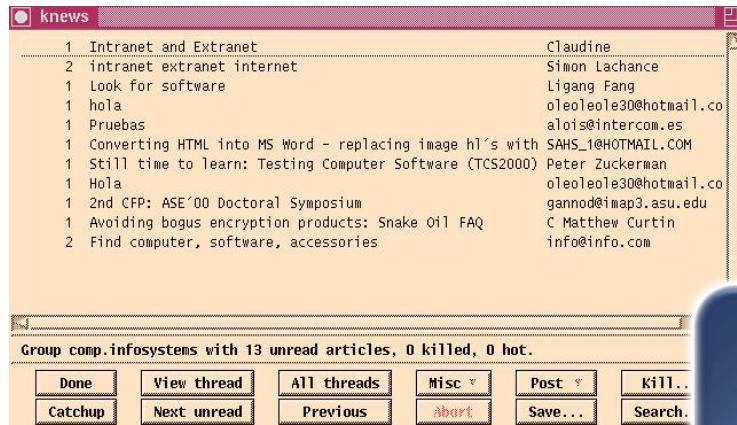


# “Information”

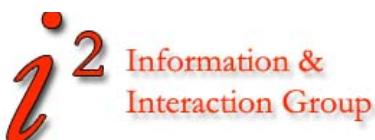


Dymocks, Melbourne, Australia

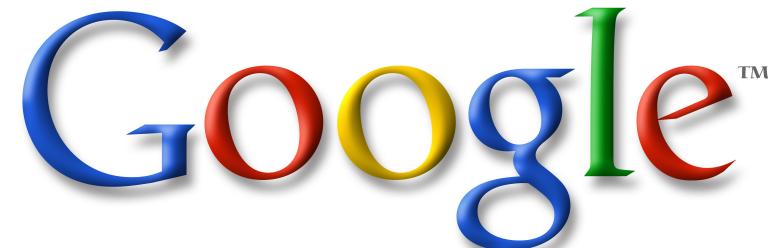
# Even more “Information”



follow us on  
**twitter**



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fliegt in Brisbane ?? Neu	Tommy	19-01-07	165	5	21-01-07 01:05		
l'Air Neu	Flückiger René	19-01-07	188	1	19-01-07 23:06		
Route Neu	Bernd Rombold	19-01-07	136	0	19-01-07 18:29		
Singapore-Airlines Neu	Andreas Adam	19-01-07	360	3	21-01-07 10:44		
rechercher Melbourne gesucht Neu	Jens76	19-01-07	154	0	19-01-07 08:51		
schäft Neu	P.Mueller	19-01-07	253	2	19-01-07 15:50		
noch jemand am 9.2. von Frankfurt nach Perth unterwegs? Neu	Petra	19-01-07	133	2	20-01-07 18:56		
Aborigines treffen Neu	Mary	19-01-07	304	4	21-01-07 04:47		
start 22.1.07 Neu	Stefano	18-01-07	192	2	19-01-07 22:20		
Schlangenbissgefahr steigt Neu	Dieter Unger	18-01-07	753	8	20-01-07 00:06		
Solar Saline am Ningaloo Reef geplant... Neu	Dieter Unger	18-01-07	203	0	18-01-07 09:16		
An du Spezialisten Neu	Anne März	17-01-07	590	8	21-01-07 16:35		
Erfahrungen als Krankenschwester in AUS Neu	Desirée	17-01-07	325	11	21-01-07 23:35		
Anrufe mit Handy Neu	Gabriele	17-01-07	377	7	21-01-07 12:21		
Whithaven Beach und Hill-Inlet Lookout Neu	Gabriele	17-01-07	315	9	21-01-07 17:20		



# (somewhat) less structured information environments



# “Embrained” minds?



## Embodied minds!

# Mini Task

What comes to your mind when you think of “human characteristics” that might be relevant to design & evaluation of human computer interfaces?

# Human characteristics

“If we could see into other peoples hearts”

[http://www.youtube.com/watch?v=Wl2\\_knlv\\_xw](http://www.youtube.com/watch?v=Wl2_knlv_xw)

(yes, it's an advertisement)

# Human characteristics

- Emotions
- Perception
- Attention
- Action

("Embodiment")

# Navy: U.S. destroyer collides with oil tanker in Strait of Hormuz

From Barbara Starr, CNN Pentagon Correspondent

August 12, 2012 -- Updated 1543 GMT (2343 HKT)



GETTY IMAGES

The U.S. Navy said its guided missile destroyer USS Porter, seen here in a 2003 file photo, collided with an oil tanker.

## STORY HIGHLIGHTS

- The USS Porter, a guided missile destroyer, collides with a tanker
- The Japanese-owned tanker was operating under a Panamanian flag
- No one is injured in the collision, the Navy says
- The Porter "is able to operate under its own power," the Navy says

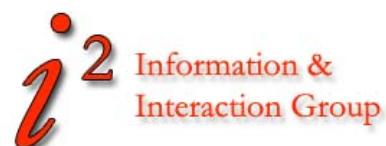
(CNN) -- The U.S. Navy said its guided missile destroyer collided with a Japanese-owned oil tanker in the Strait of Hormuz early Sunday morning.

No one was injured in the collision that occurred about 1 a.m. local time when the USS Porter collided with the Panamanian-flagged bulk oil tanker M/V Otowasan, the Navy said in a statement.

The Navy did not provide details about the collision, saying only the accident was not related to combat. It said the incident is under investigation.

Selective attention test (basketball)

<http://www.youtube.com/watch?v=vJG698U2Mvo>



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Selective attention test (basketball)

<http://www.youtube.com/watch?v=vJG698U2Mvo>

The Monkey Business Illusion

[http://www.youtube.com/watch?v=IGQmdoK\\_ZfY](http://www.youtube.com/watch?v=IGQmdoK_ZfY)



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The Invisible Gorilla (featuring Daniel Simons) -  
Regional EMMY Winning Video  
<http://www.youtube.com/watch?v=UtKt8YF7dgQ>



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The door study  
<http://www.youtube.com/watch?v=FWSzSQsspiQ>



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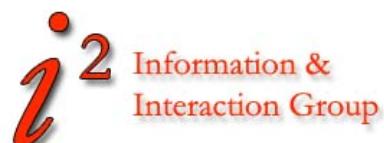


# the invisible gorilla

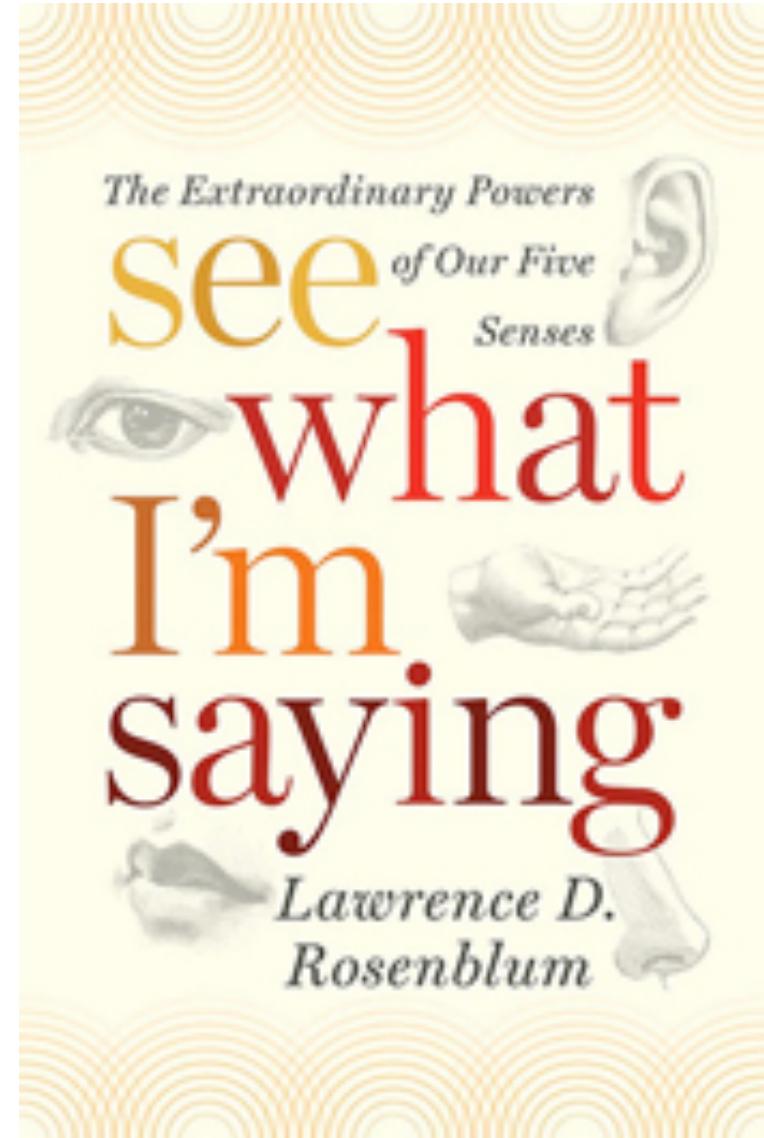


And Other Ways Our Intuitions Deceive Us

Christopher Chabris and Daniel Simons



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# Limited attention span

Singing in the Car Makes You a Worse Driver - Commute - T...

<http://m.theatlanticcities.com/commute/2012/08/singing-car-...>

FRIDAY AUGUST 17, 2012

[FULL WEBSITE »](#)

## Singing in the Car Makes You a Worse Driver

NATE BERG 11:04 AM ET COMMENTS



Flickr/Patrick Denker

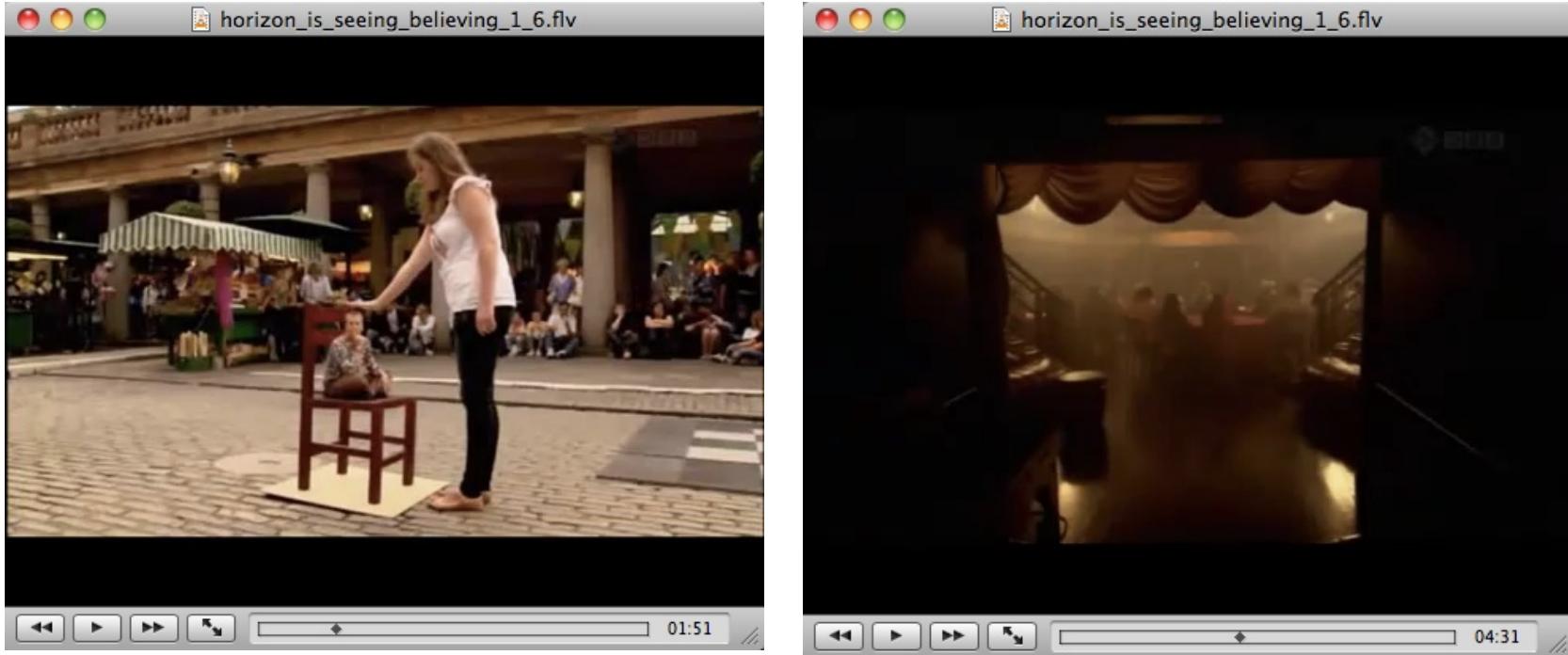
As you sing along, your subjective mental workload increases, your detection of peripheral activities drops and even your speed falls. According to new research on singing and driving, you become a ~~dangerous driver when singing in the car~~.

Researchers at Monash University in Australia recently published an article in the journal *Accident Analysis and Prevention* that looks at how driving abilities differ between people who are driving and singing, driving while listening to music, or driving with no music. In driving simulations, 21 drivers were tested on their ability to detect and react to conditions on the road. Drivers who were either singing with music or just listening were found to have slower reaction times than those that were not listening.

The research suggests that singing along requires more mental activity – which draws away some of your attention from the road. Singing drivers were more likely to vary their speeds and to drive at an overall slower rate. Interestingly, the research also shows that singing drivers had significantly less movement within lanes than those not listening to music.

1-63

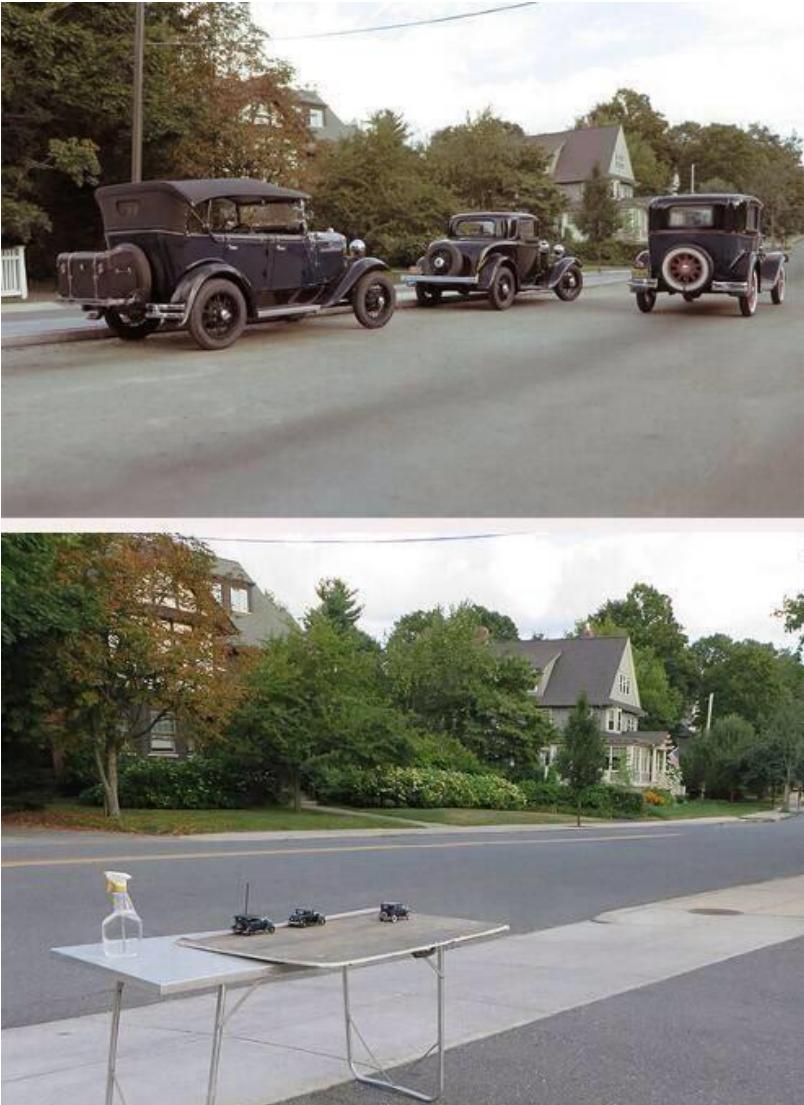
18/08/12, 1:47 PM



## BBC Horizon "Seeing is believing" (is it?)



<http://www.richardgregory.org/experiments/video/chaplin.htm>



Powerful Pictures @PowerfulPics

20 Oct 2013

It is not Photoshop,  
nor a photo of the past,  
is just perspective.

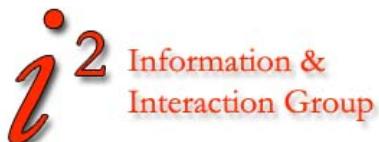
[pic.twitter.com/A9axLNraDF](https://pic.twitter.com/A9axLNraDF)

# Yet Another Mini Task

Have you experienced situations where location / body orientation / perspective made succeeding with an activity more difficult than necessary?

**Limitations of our embodied perception  
pop up everywhere  
once you start looking for it...**

(which is an interesting perception issue by itself!)



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# Lessons to be learned

We need to pay more attention to Human Characteristics, such as

- Perception
- Attention
- Action (as way of changing the way we perceive)
- ...







Fullers, Hobart Dec 2012

information humans are not able to ‘sense’

information ‘perceived’ but not actually ‘sensed’  
(e.g., illusions, false memories)

## **information consciously perceived ("information to work with")**

information ‘sensed’ but not ‘perceived’  
(e.g., inattentional blindness)

information not ‘sensed’  
(because of impaired vision,  
body orientation, etc.)

information sub-consciously perceived

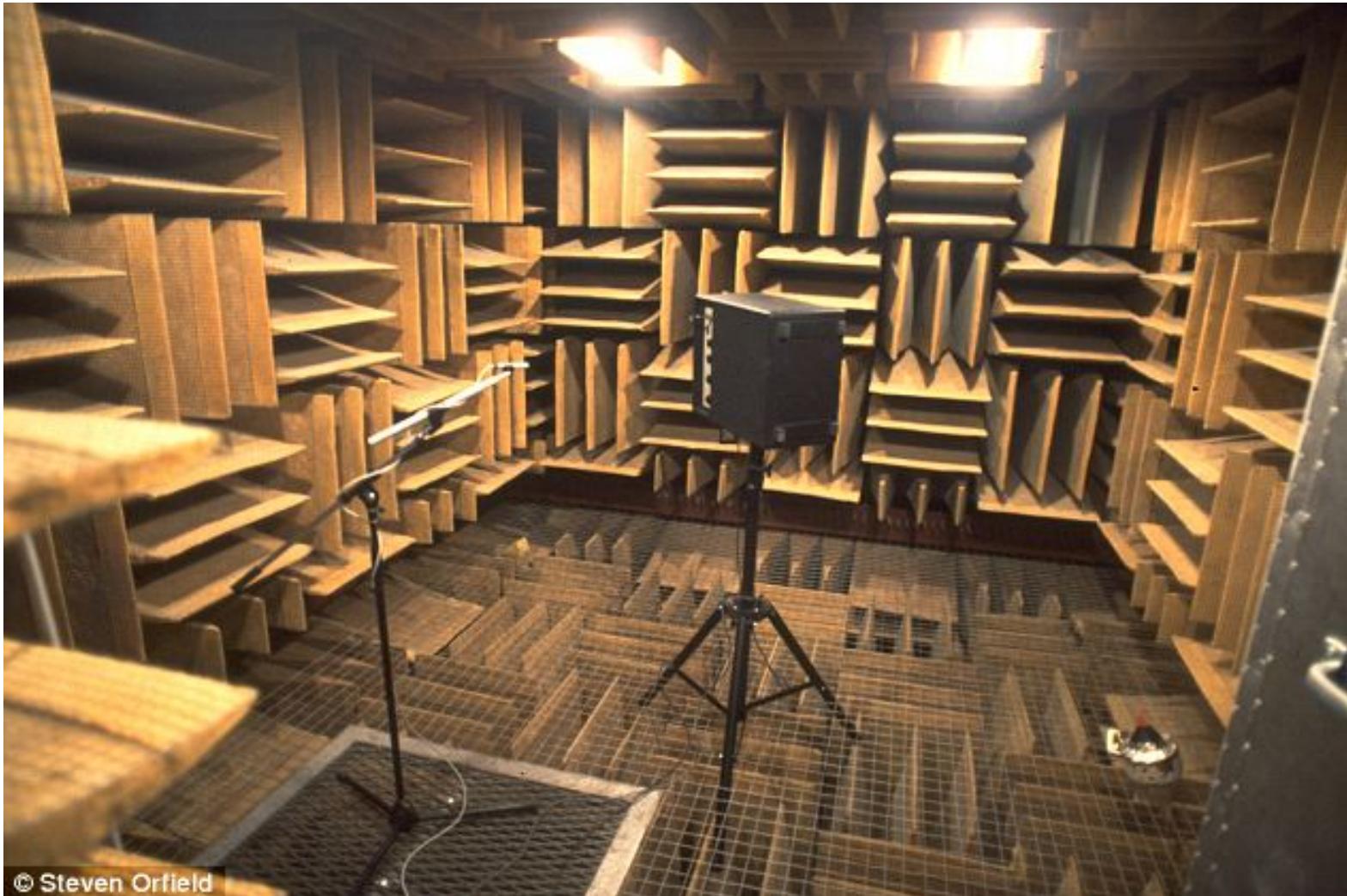
# We are not able to “not see” (except for actual blindness)

**WARNING** flashing lights!

BEAM IN THINE OWN EYE / DARK MOFO

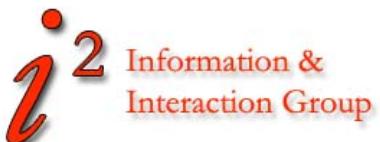
[www.darkmofo.net.au/program/beam-in-thine-own-eye/](http://www.darkmofo.net.au/program/beam-in-thine-own-eye/)

<http://media.theage.com.au/system/ipad/dark-mofo-2013-beam-in-thine-own-eye-4235674.html>



© Steven Orfield

## Anechoic chamber at Orfield Laboratories



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**“Characteristics” of our embodied perception pop up everywhere once you start looking for it...**

(which is an interesting perception issue by itself!)



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# What does all this mean for information interfaces?

# What does all this mean for information interfaces?

First of all,  
do not assume  
people will always “see”  
what is in front of them!

**“What we know”**  
(information we looked at, consciously)

**“What we don’t know”**  
(information we chose to ignore  
to the extent that it’s possible->advertising)

**“What we don’t know we don’t know”**  
(information we don’t even know was there!)

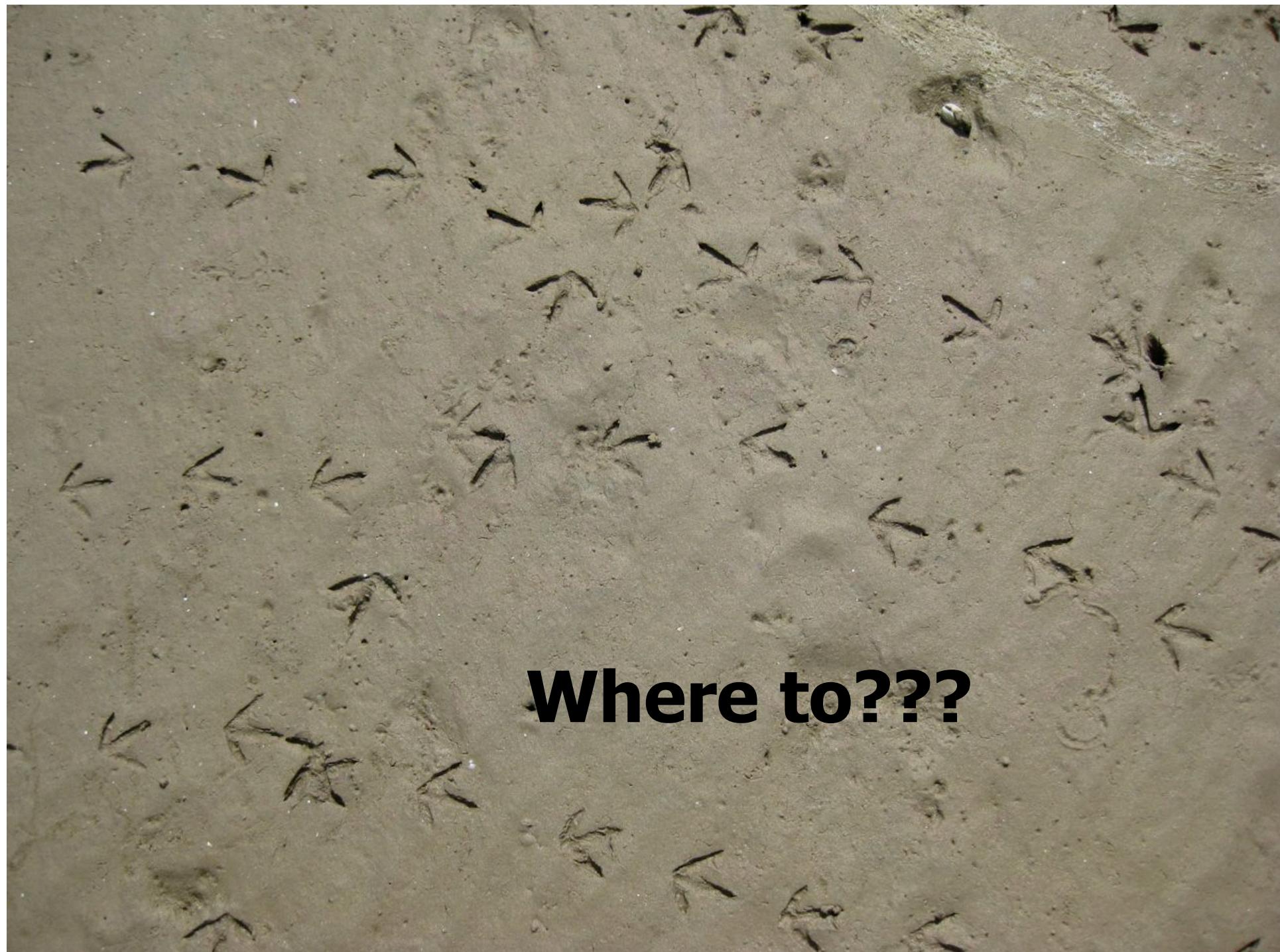
# “What we think we know”

(Thanks, CS @ Waikato!)



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# Embrace different perspectives



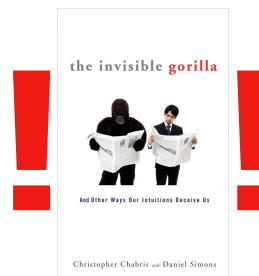
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# Understand different perspectives



~10 year old driver attention study



<http://robotatcwe.epfl.ch/wearcamModel.jpg>



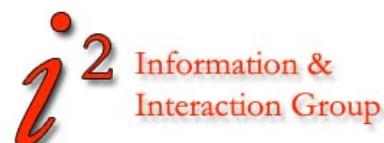
mit dem körper sehen: fern\_sehen / rüsselkamera (vimeo)  
<https://vimeo.com/channels/mitdemkoerpersehen>



3 Seconds A Day On 2,600 Mile Hike From CA to BC  
[http://www.huffingtonpost.com.au/2014/02/03/  
pacific-crest-trail-tyler-fox\\_n\\_4719342.html](http://www.huffingtonpost.com.au/2014/02/03/pacific-crest-trail-tyler-fox_n_4719342.html)

Remember “If we could see into other peoples hearts”?

[http://www.youtube.com/watch?v=Wl2\\_knlv\\_xw](http://www.youtube.com/watch?v=Wl2_knlv_xw)



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The age simulation suit: This is what it feels like to be old

[http://www.theguardian.com/society/video/2014/mar/31/  
age-simulation-suit-healthcare-old-video](http://www.theguardian.com/society/video/2014/mar/31/age-simulation-suit-healthcare-old-video)

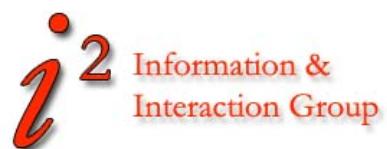
[http://www.youtube.com/watch?v=Wl2\\_knlv\\_xw](http://www.youtube.com/watch?v=Wl2_knlv_xw)



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# Innovate!



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Anar Foundation "Only for Children"  
<https://www.youtube.com/watch?v=6zoCDyQSH0o>

# Other interesting approaches

“adding cues to the environment”

or changing the cues we use (Y. Rogers)

“offering opportunities for action”

(sometimes offering a “2<sup>nd</sup> chance”)

# Adding and/or changing cues (“nudging”)



“Piano stairs” in Stockholm  
(<http://www.youtube.com/watch?v=2lXh2n0aPyw>)

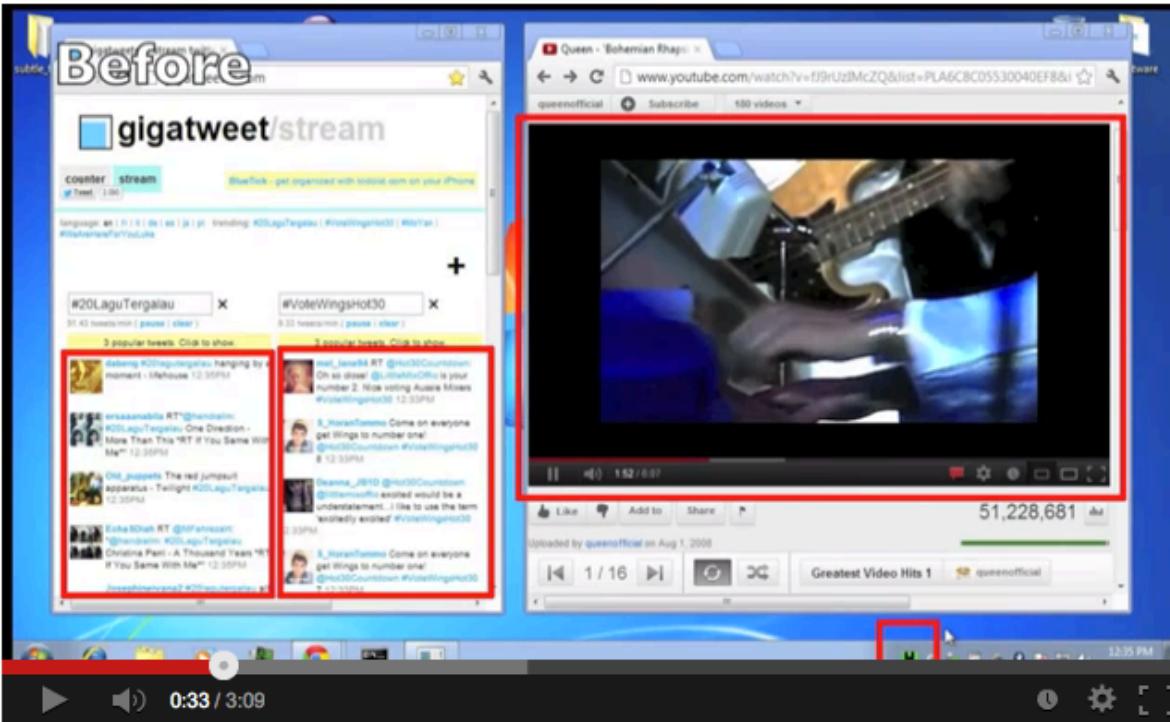


“ActivMon”  
discussed  
later



“ShelvAR” by MU ARRG  
<http://www.users.muohio.edu/brinkmwj/ar/>

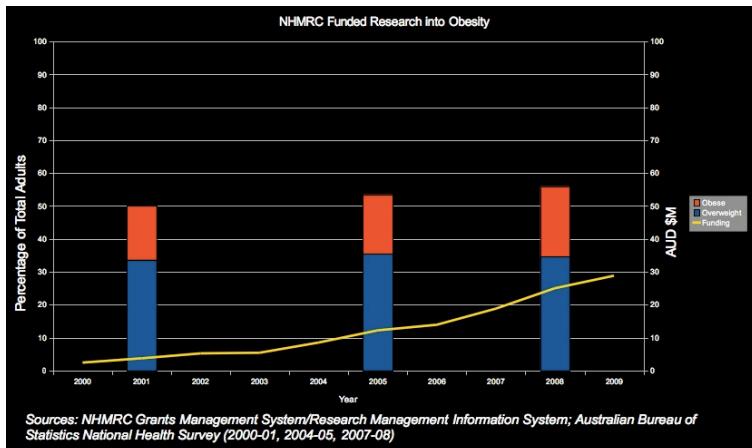
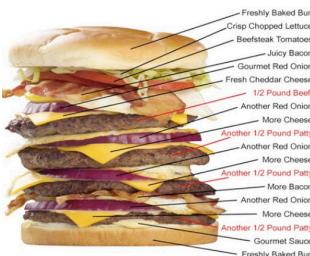
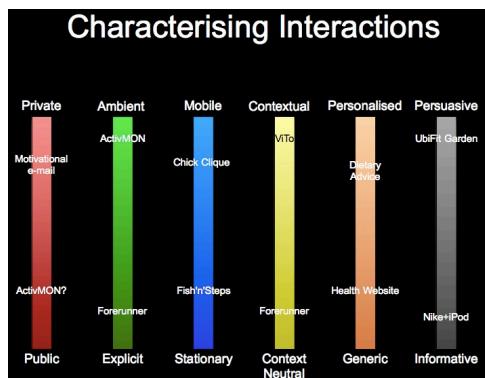
# Highlighting change



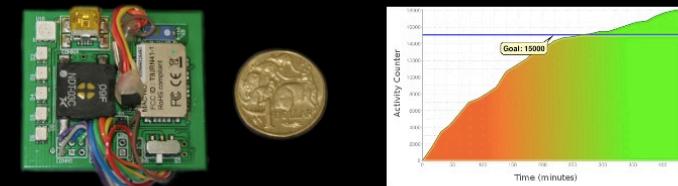
"Subtle gaze-dependent techniques for visualising display changes in multi-display environments"

[http://www.youtube.com/watch?v=\\_V\\_tJmJ8cYw](http://www.youtube.com/watch?v=_V_tJmJ8cYw)

# Weaving Activity in the fabric of everyday life



## ActivMON – A Wearable Ambient Activity Display



Burns, P., Lueg, C., Berkovsky, S. (2011).  
**ActivMON**: A Wearable Ambient Activity Display.  
 In Höpfner, H. et al Proc. 6. Konf. Mobile und  
 Ubiquitäre Informationssysteme, Kaiserslautern.

learning that what I aim for  
in my work today  
was present  
long before I could name it



Uta Barth, The Long Now. 2010

# Thank you for inviting me!



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