EDINBURGH NAPIER UNIVERSITY
Centre for Interaction Design

Dr Oli Mival
Senior Research Fellow

- Leading Interaction Design on COMPANIONS project
  (€14 million EU Framework 6 funding,16 academic and industrial partners)
- Future Living. Future Life.
- Project ICE
- Some questions...

WHAT IS THE COMPANIONS PROJECT?

Intelligent, Persistent, Multimodal Interfaces to the Internet

- unified natural language interfaces
- speech technologies have matured to a usable level
- ASR to NLU to NLG to TTS
- server side or local processing
- context aware multimodal interactions

lovely...but what does this mean for normal people?

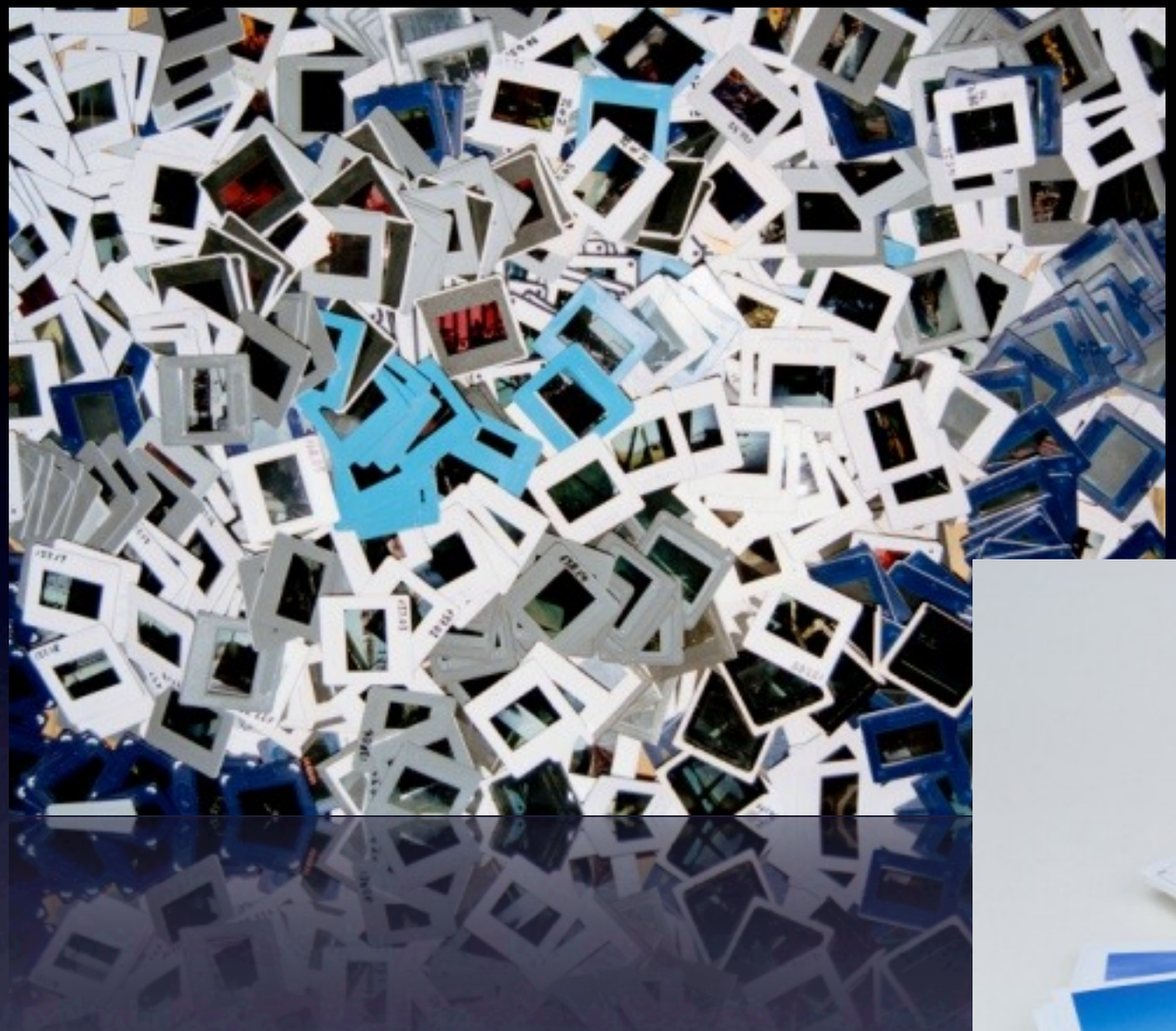
Natural, intuitive, powerful interfaces
to massive data sets....

eg. our digital photos

We used to use these...

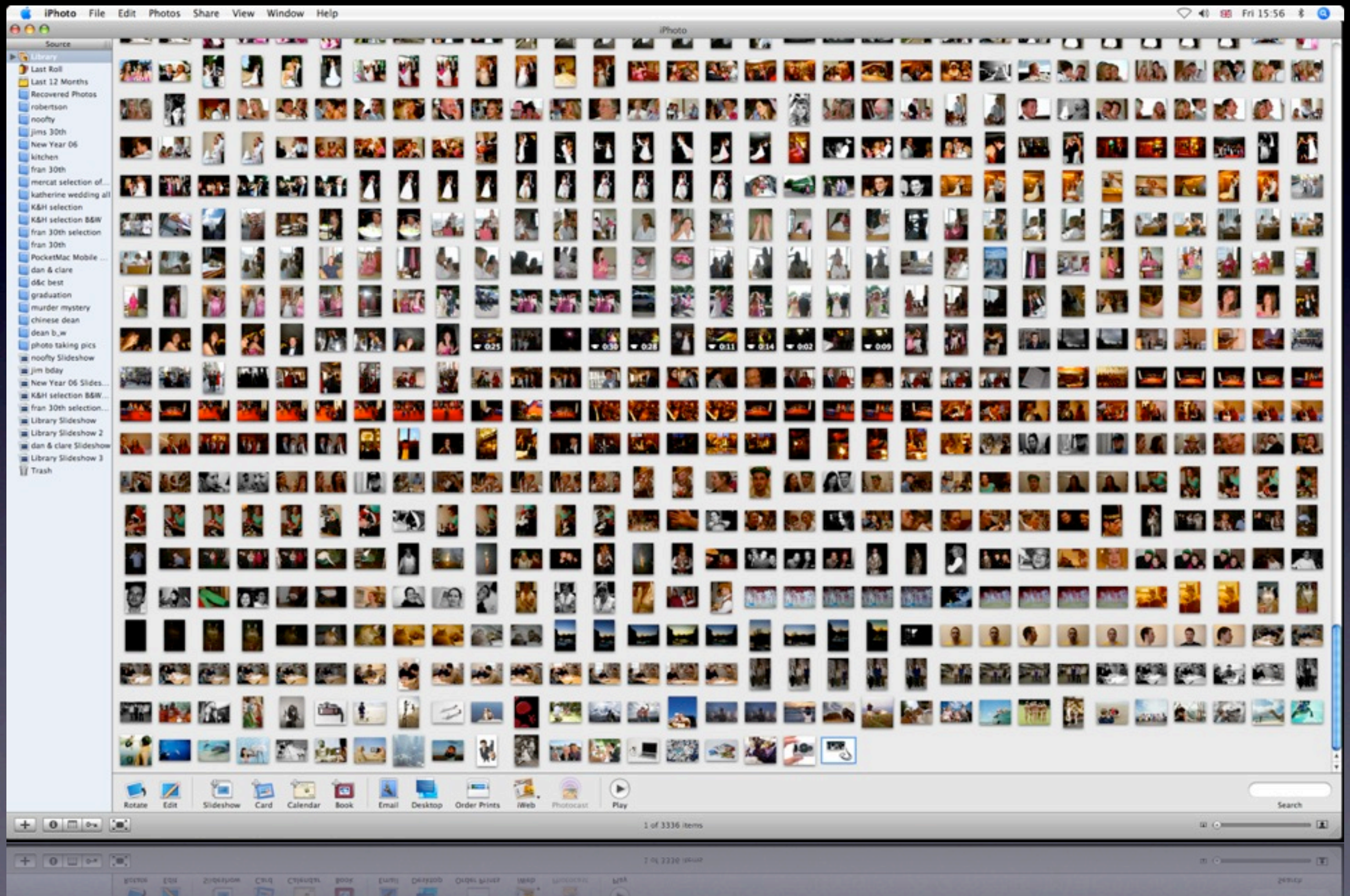
but now we've got these...

and that gives us a problem...



this...

becomes this!



Information Overload!

What can we do?

Add information about information....

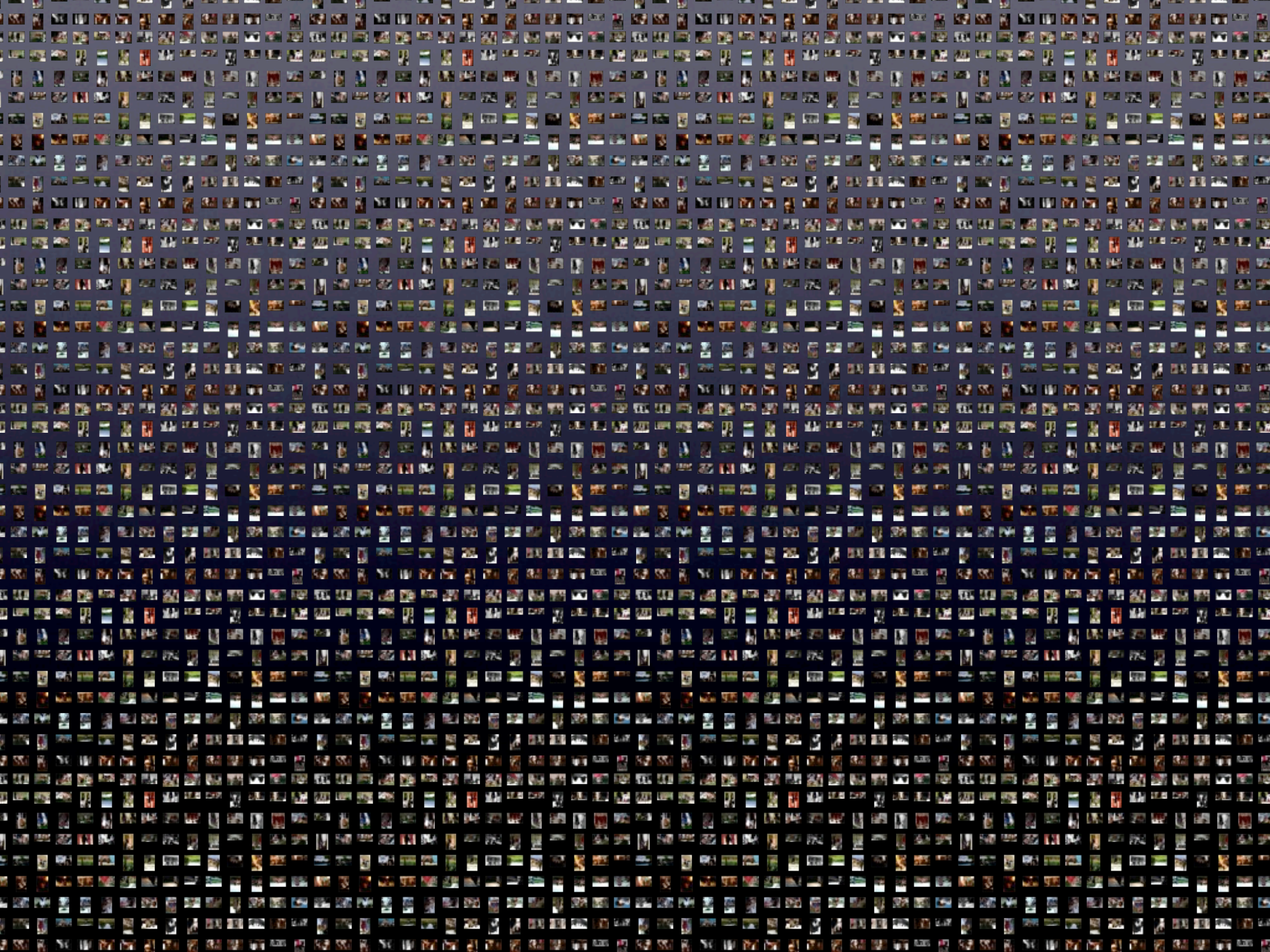
METADATA

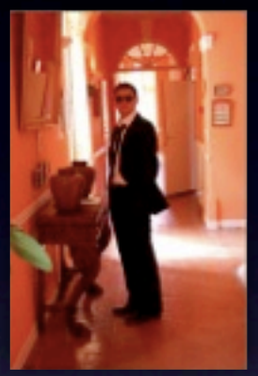
- Allows for powerful search, retrieval and collation

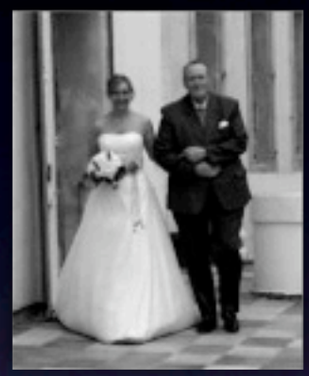
- Boring as hell to add manually, and practically impossible when dealing with 1000's of images

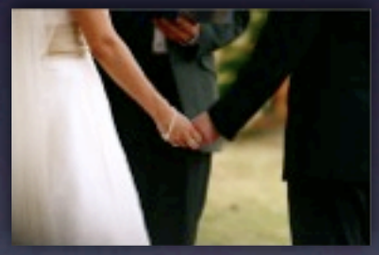
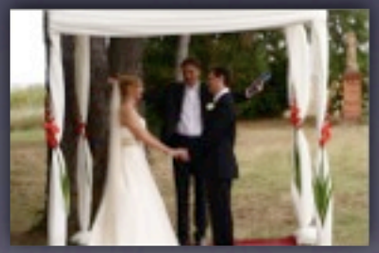
- We apply Talk to Tag, allowing a Photo Companion to automatically acquire rich metadata (and embedded audio) about a selection or collection of photos

- This allows the Companion to build a rich tag database as well as complicated relationships between images and the contents of those images

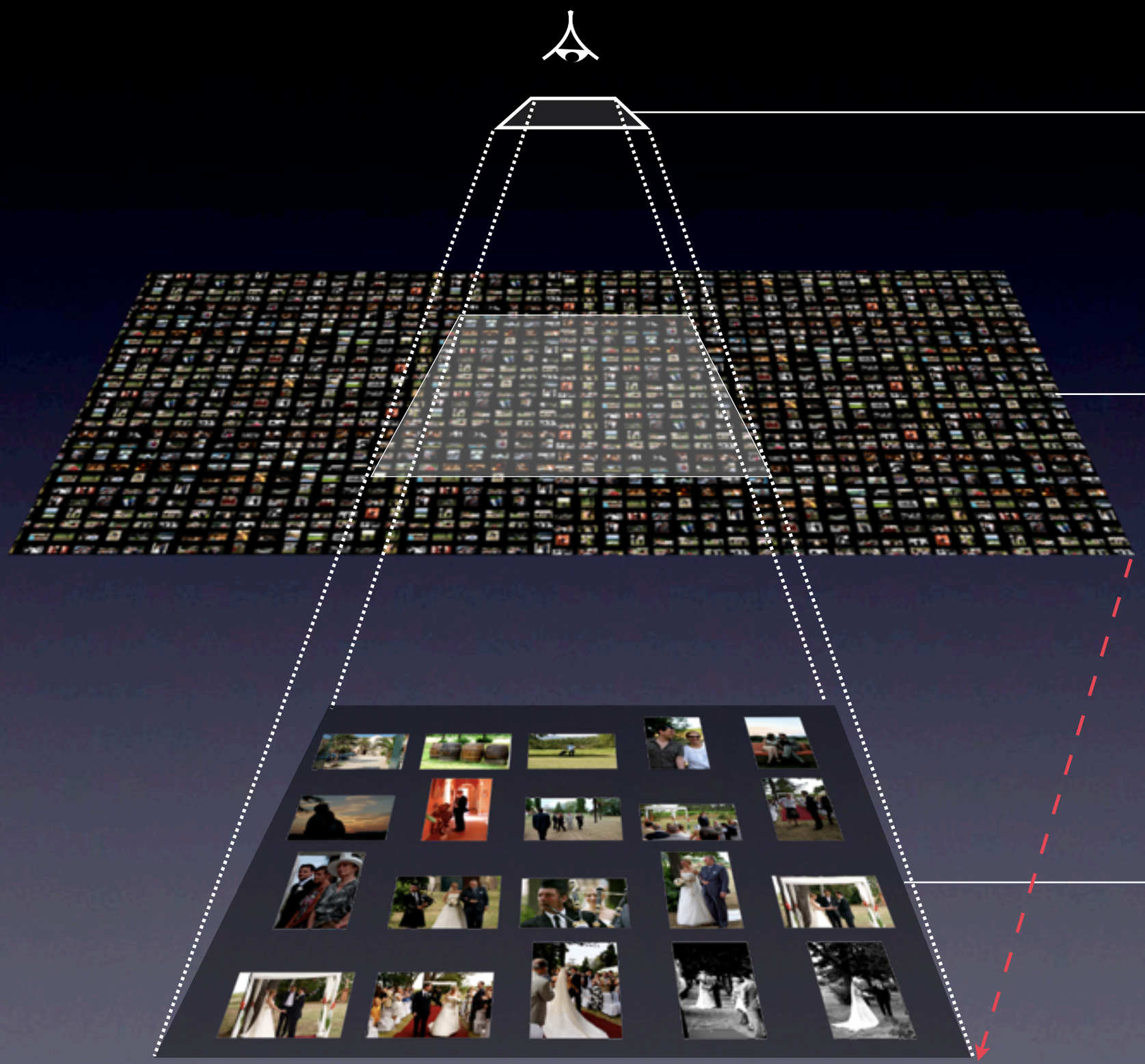






Moving from ALL to MANAGEABLE

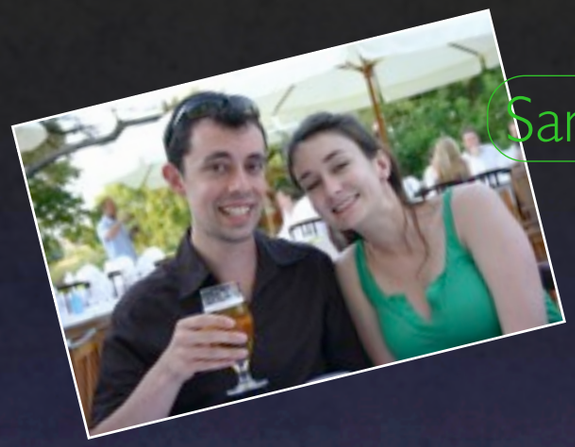


VIEWING LAYER

ALL LAYER

Movement possible by
applying boolean
application of tags
(metadata) to ALL LAYER

MANAGEABLE LAYER



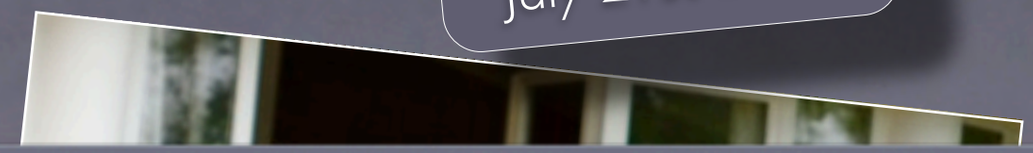
Sam Wood

John Feeney

Oli & Mhairi's Wedding

Chateau Saint Martin des Champs

July 21st 2007



making this possible...

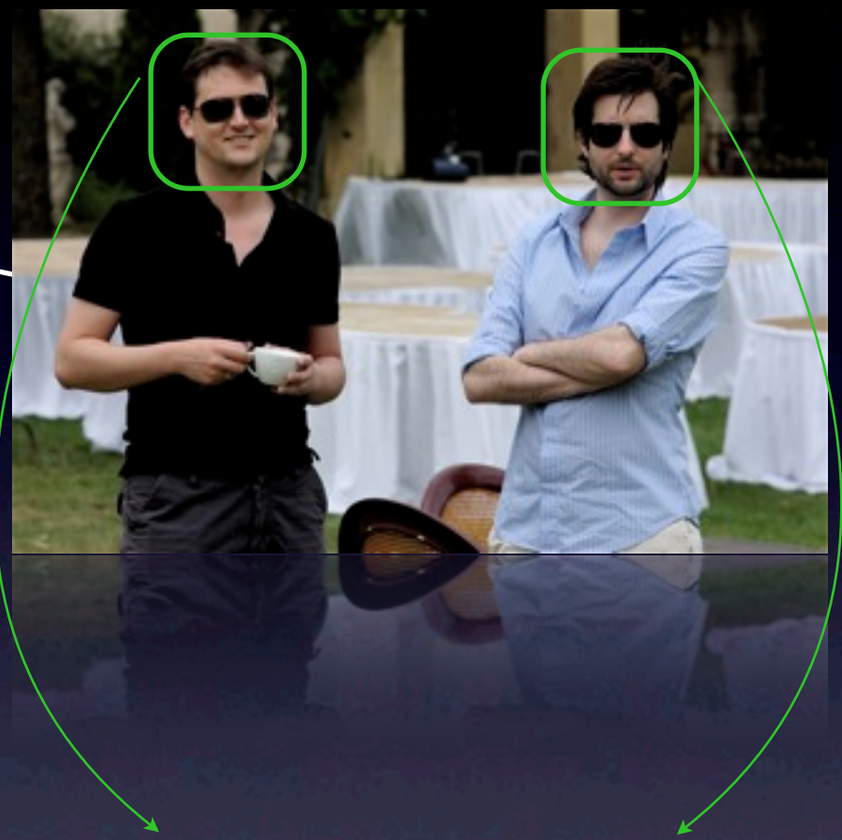
TALK-2-TAG

allowing automatic, semi-automatic and user generated metadata addition.

ADDING METADATA

Automatic

Image	
Width:	3,230 pixels
Height:	2,152 pixels
Original Date:	21/07/2007 11:21:52
Digitized Date:	21/07/2007 11:21:52
File	
Name:	IMGP0207.JPG
Size:	1.5 MB
Modified:	27/07/2007 21:50:10
Imported:	05/10/2007 16:02:43
Camera	
Maker:	PENTAX Corporation
Model:	PENTAX K10D
Software:	QuickTime 7.1.6
Exposure	
Shutter:	1/250
Aperture:	f/6.7
Max Aperture:	--
Exposure Bias:	0.00
Exposure:	Normal program
Exposure Index:	--
Focal Length:	35mm
Distance:	--
Sensing:	One-chip color area
Light Source:	--
Flash:	Off
Metering:	Pattern
Brightness:	--
ISO Speed:	100
GPS Latitude:	-- 3.169521
GPS Longitude:	-- 43.446423
GPS Altitude:	--



Semi-Automatic

Event - *Oli & Mhairi's wedding (general & specific)*
People - (2) *John Feeney + Oli Mival*
Place - *Chateau Saint Martin des Champs*
Rating - ****
E.I. - *High*

User Generated

- TEXT STRINGS -

Old Friends
Worked together
Ran company together

- ASSOCIATED EMOTIONAL STATE -

"This reminds me of the good old days..."

IMAGE (A) METADATA

Date	21/07/07
Time	14.34
Location	
Number of Views	7
Imported	07/08/07
Modified	08/08/07
Source	Facebook™
Author	Jamie Sands
History	Share (Email - Upload - Print) Browse (Previous - Next)

IMAGE (SA) METADATA

Event	Oli & Mhairi's Wedding
People	(2) John Feeney + UNKNOWN
Place	Chateau Saint Martin des Champs
Rating	**
EI	Medium

Unknown 113 John Feeney

"JOHN FEENEY" OBJECT METADATA

Gender	100% Male
Age	30
Frequency	Medium
E.I.	High
Connections	eg. (UG) - "Friend from [illegible]"
Occurrences	213

"Unknown 113" OBJECT METADATA

Gender	75% Female
Age	?
Frequency	Low
E.I.	?
Connections	eg. (A) - 7 photos + "John Feeny" - 5 photos + "Oli & Mhairi's Wedding"
Occurrences	9

Connections allow the user to move through their data via objects and classes and visualise how the objects are distributed across all the data. In real terms, how many times does a certain person appear in certain events and with certain other people.

Phoebe Buffay

Search system (keyboard and speech?)

toggle mic on/off

edit

send to friend

send to cloud storage

upload/import social network data

CONFIGURABLE STOP

Return home (root, show all?)

Show photo location on a map

PHOEBE BUFFAY

Confirm accuracy of Fuzzy Tag

Look at other pictures of person

CHANDLER BING

Rachel Monica season Phoebe wedding relationship Joey two Ross played Chandler

associated Tag Cloud

JOEY TRIBIANE

MONICA BING

Look at Tag details

Show tag search in Wikipedia

edit panel HUD (toggle on/off) simple slide controls (configurable options)

Look at other photos from same day

July 23rd 2003

Dino'03 Conference

Open tag in Wikipedia

BAHAMAS

This is when we all went to Ross's conference in the Bahamas

Full audio tag

Can all the other photos from the set be seen flat on the plane which the current photo is displayed standing? (eg they could 'pop' up if they had similar tags as the one being pressed)

The Bahamas

History

PHOTO SET VIEWING PLANE

Scroll through web page (or just scroll directly in text obx iPhone)

THE MOBILE, THE ULTIMATE PDA

Our always connected, location aware, central resource for all information and digital artifacts.

eg.
our music, photos & video
our contacts
our schedule
our social networking
our online resources (email, etc)

All pictures
Search
Edit
send to contact
send to cloud storage
toggle mic on/
upload/import

That is Gary Burns next to Mark. On Gary's left is his brother, Brian.

htc
Mark O'Neil
Gary Burns
Brian Burns
Graham
MENU

BRIAN'S STAG DO

April 3rd 2009

Crieff, Scotland

Mark O'Neil, Gary Burns, Brian Burns, Graham Sands

Augmenting reality in non-real time...

htc
Mark O'Neil
Gary Burns
Brian Burns
Graham
MENU

Why are we so focused on the visual?

What about the other senses?

FUTURE LIVING, FUTURE LIFE

- Potential 5 year investment of £3.5 million
- Augmenting current spaces and creating new ones
- Investigating current interactions and developing novel ones

- First stage is Project ICE
- Second stage is an augmented Public space (eg Student Wall)
- Third stage is large scale living environment

PROJECT **iCE**

WHAT IS IT?

Conceived as a multi-user, multi-orientation, multi-screen, multi-touch environment using multiple platforms for development and research into novel interaction experiences, networking and emergent computing.

The room has bespoke, commissioned industrial strength hardware to ensure for a robust future proof technological platform on which to build a portfolio of cutting edge, world-class research and development projects.

PROJECT iCE

WHAT'S THE CONCEPT?

Removing the mediation of the traditional desktop computing paradigm frees our developers and designers to work towards the next generation of user interfaces.

The ICE is intended to be a blank slate where the technology doesn't drive the applications, rather the needs, wants and activities of the people using the space do.

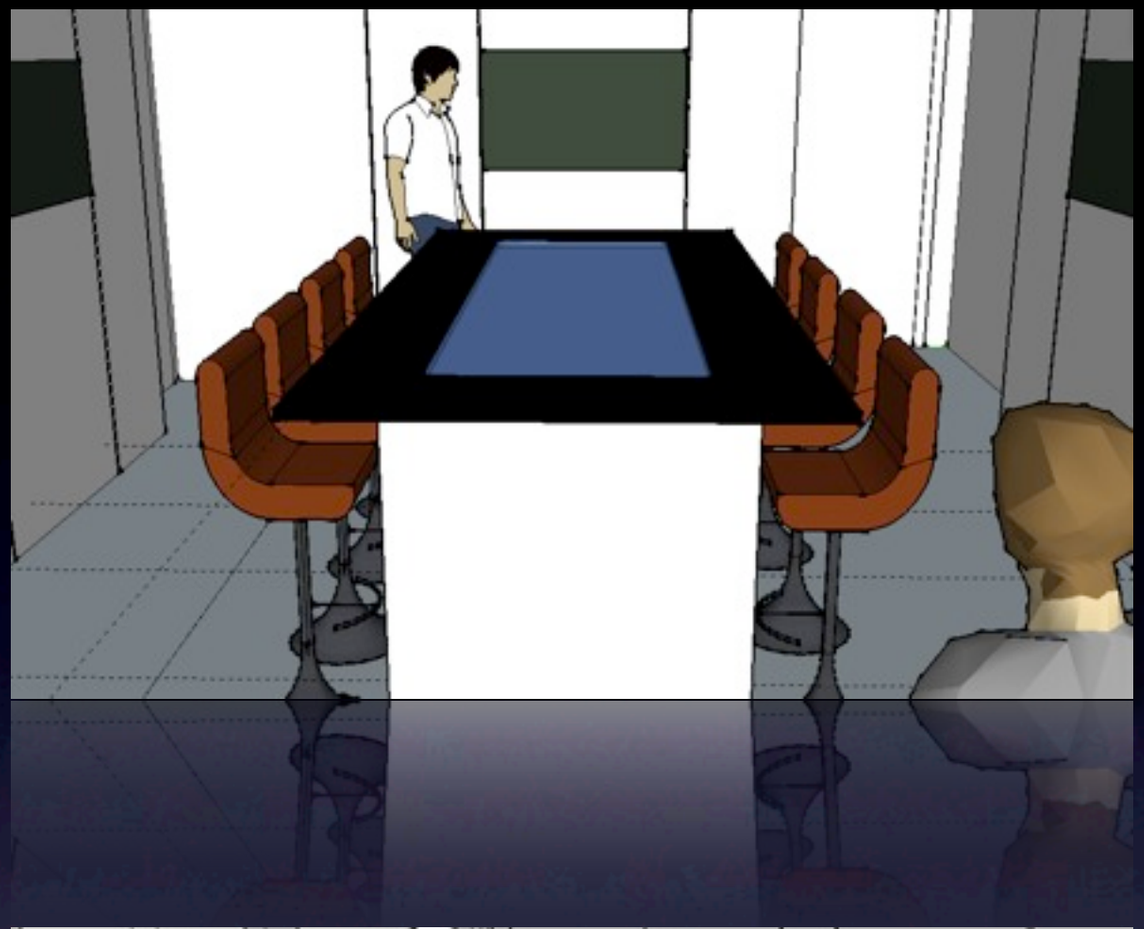
We feel collaborative environments must allow the free flow of ideas between people whilst maintaining a browsable history and formalisation of any process that takes place.

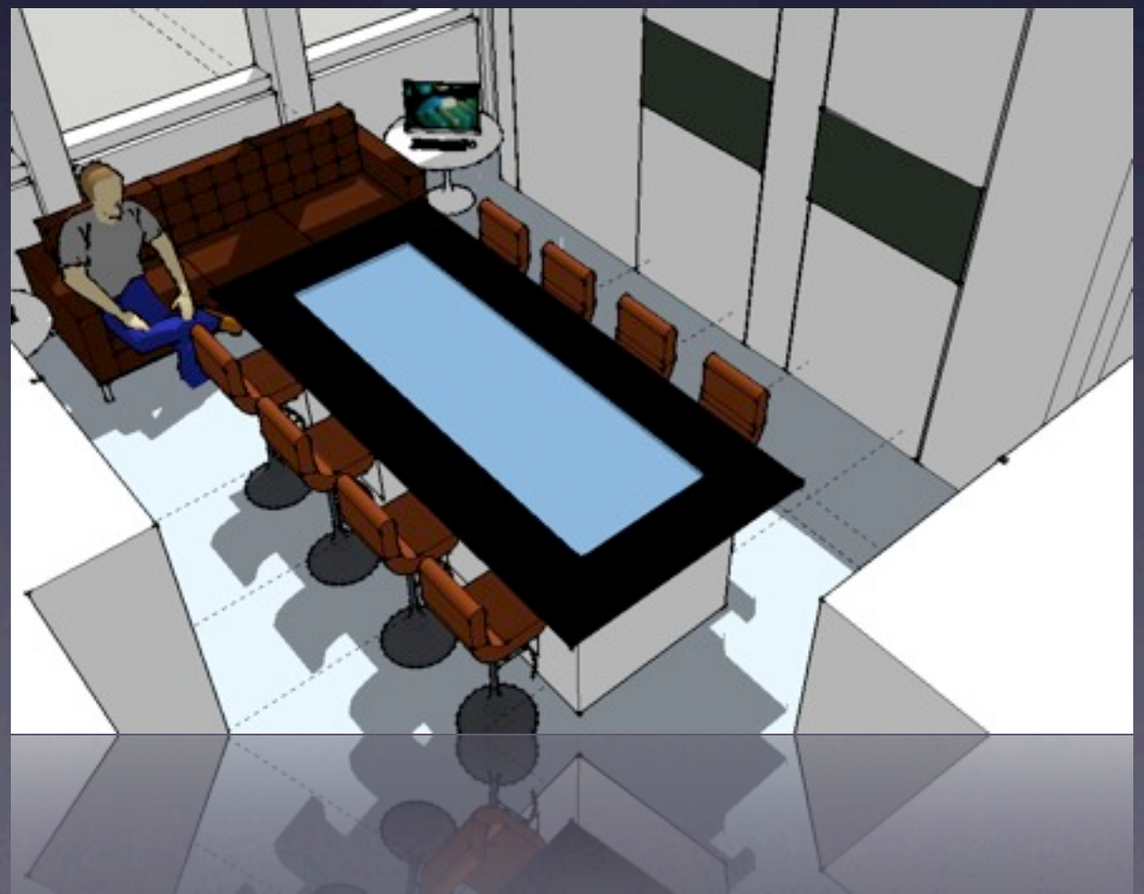
Constraining people to one-at-a-time interactions in a crippled space has no place in the 21st century.

Be it a door a wall or a tabletop, all aspects of an environment should help the people within it fulfill their activities and do so in pleasurable intuitive ways.

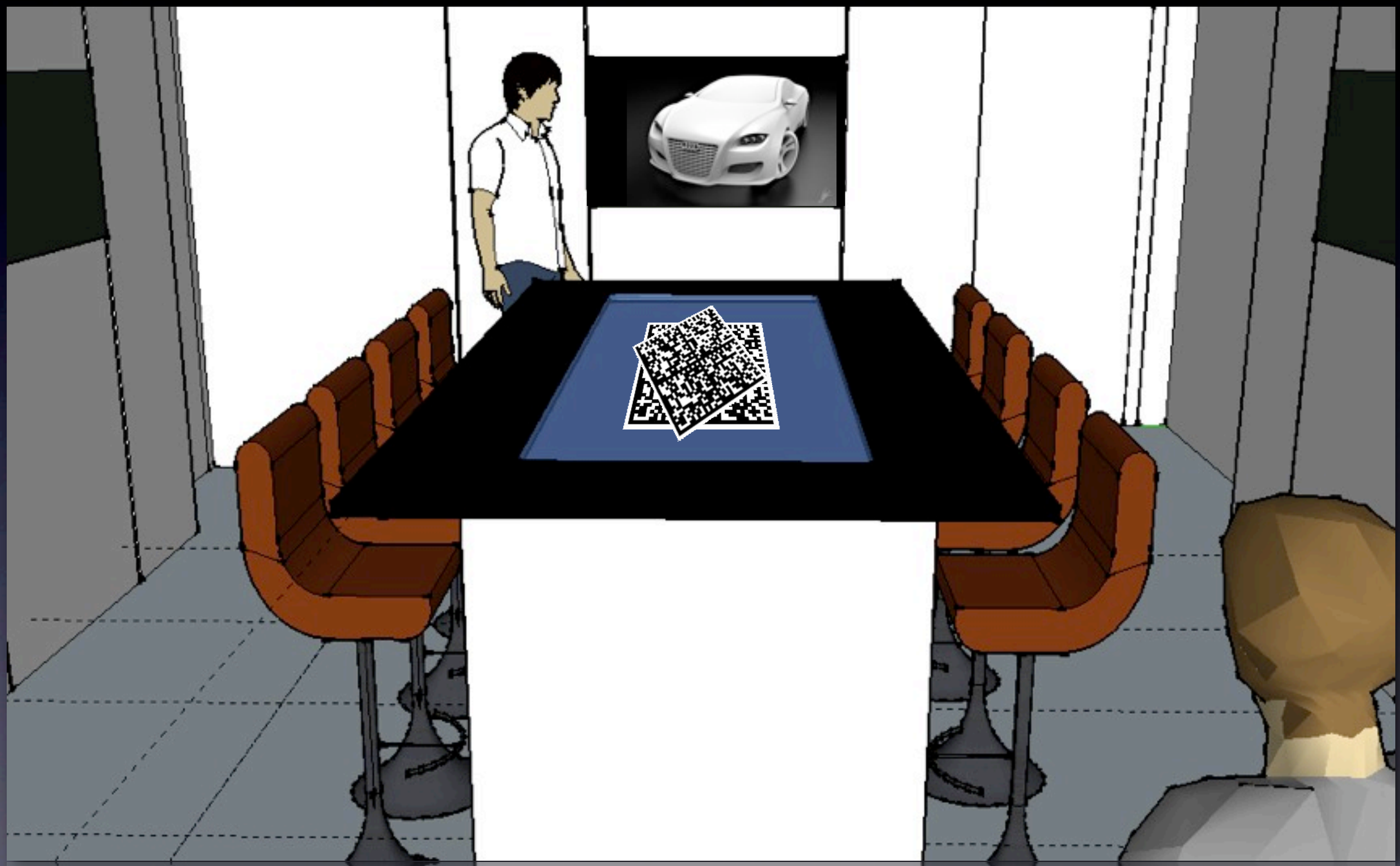
The ICE uses cutting edge hardware to provide the infrastructure and platform for this aim.

PROJECT **iCE**

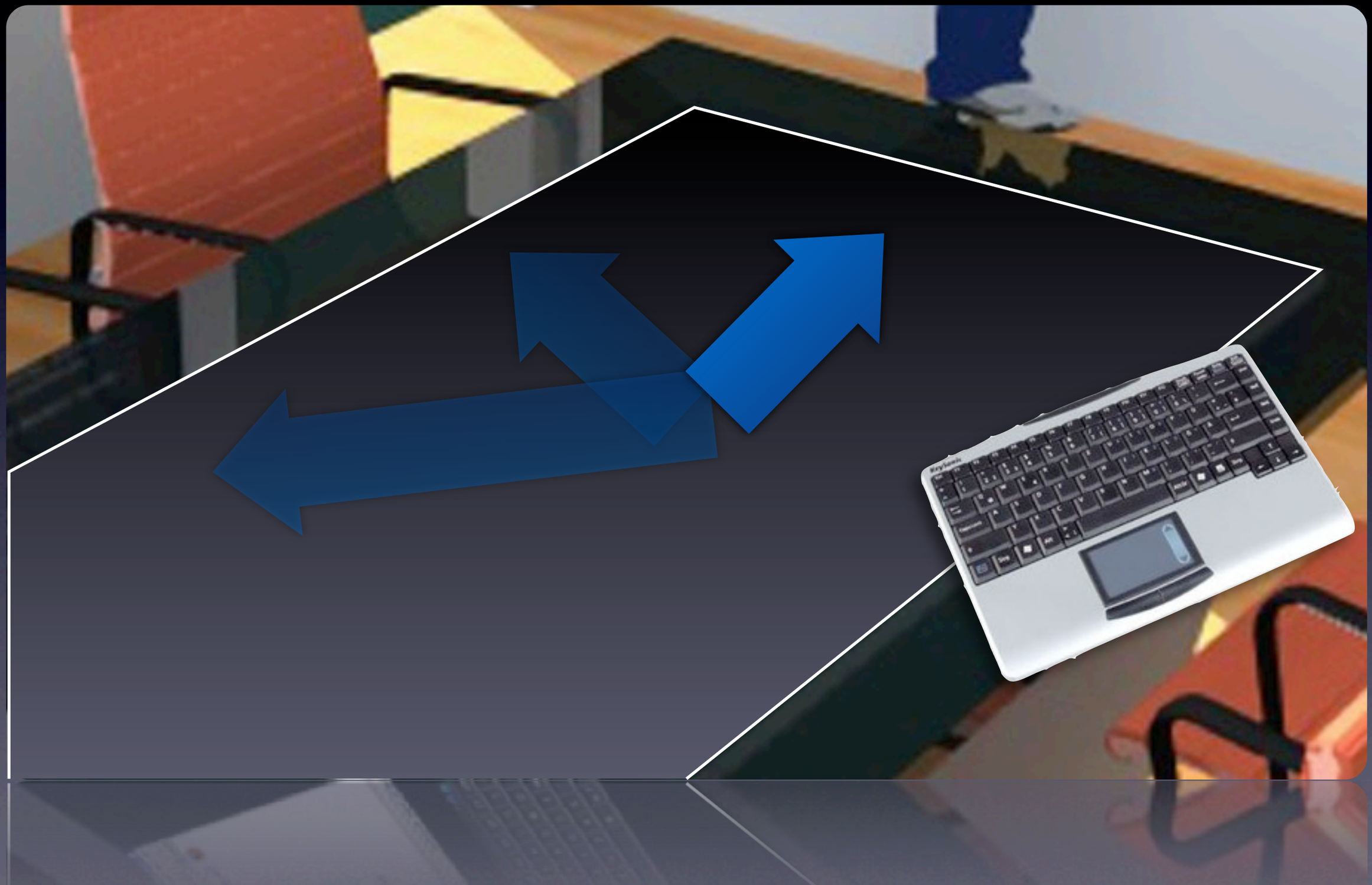




PROJECT **iCE**

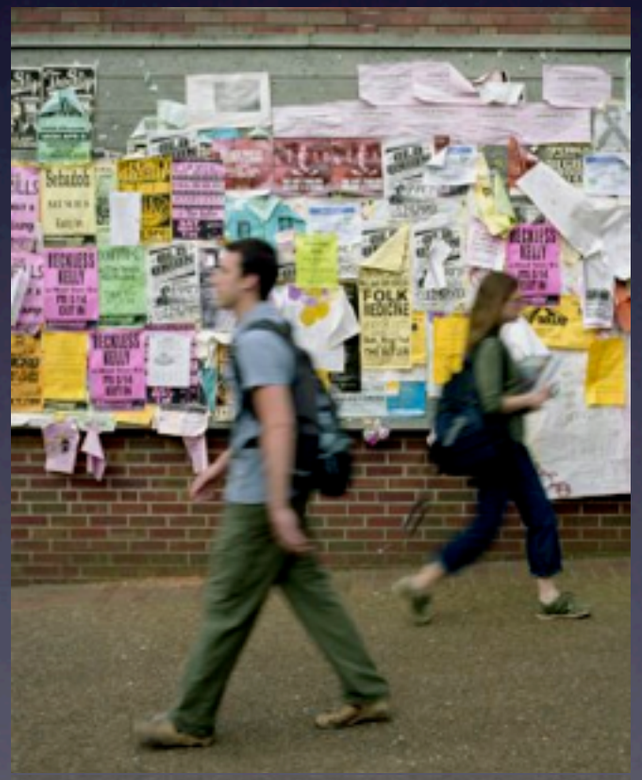


PROJECT **iCE**



PUBLIC VERSUS PRIVATE SPACES?

AR is an opportunity to privatise public spaces,
eg student grades, private messages to club members



A COUPLE OF QUESTIONS ABOUT AR/MR?

- Where does the content come from?
- Advertising will worm it's way in

- How can you trust the source?
- How can we filter the world cloud through interaction context?
- How can other modalities other than video be utilised?
- Is there a way to have a generic (non commercial) AR API?
- How do we initiate interaction experiences?