

Using the SenseCam hands-on!

Dr. Aiden R. Doherty

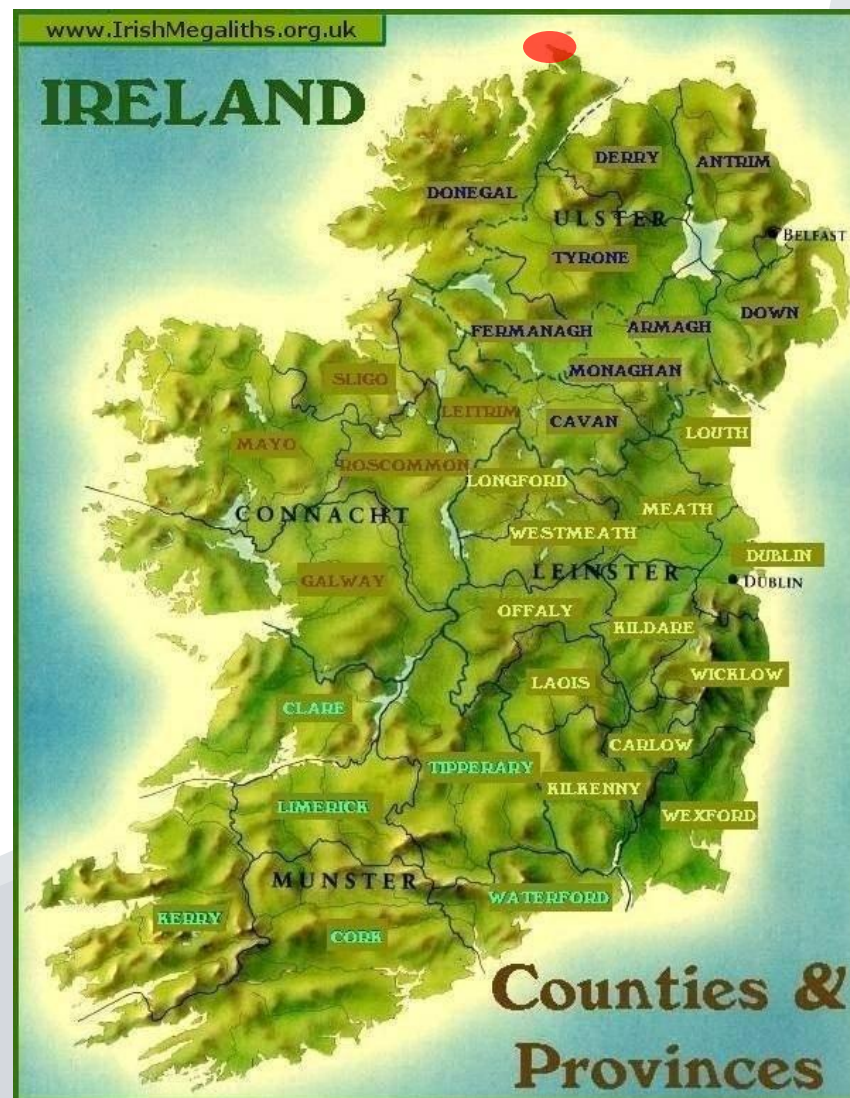
British Heart Foundation Health Promotion Research Group, Oxford



Where is this guy from?

Malin Head

Co. Donegal





Who am I?



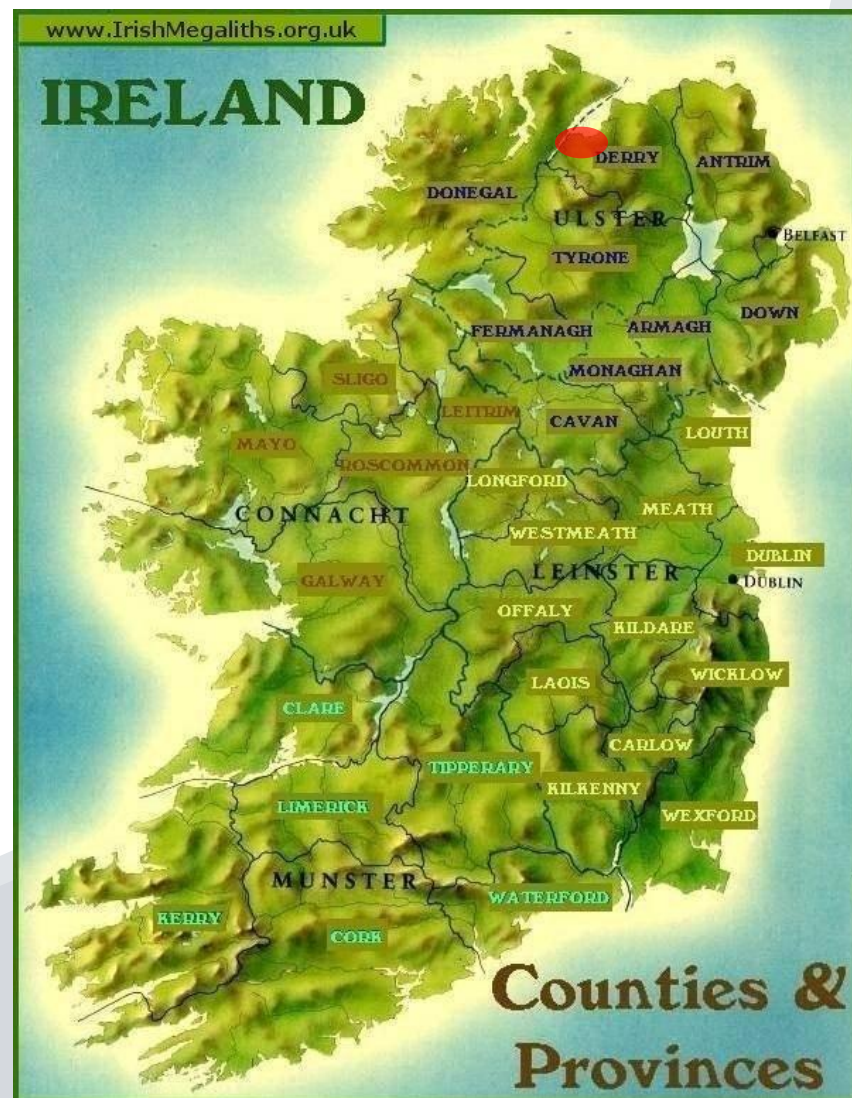


The good old student days...

- Undergrad in Computer Science
 - 2001 - 2005
 - University of Ulster, Derry

- PhD in computing
 - 2005 - 2008
 - Dublin City University

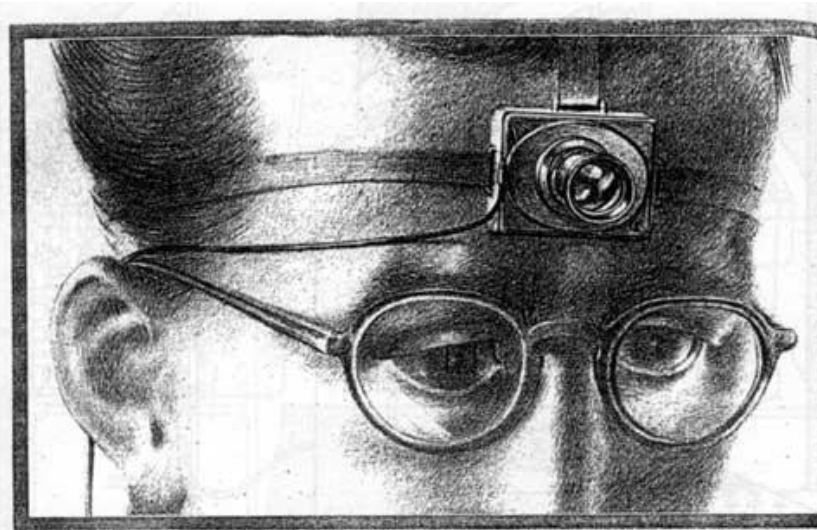
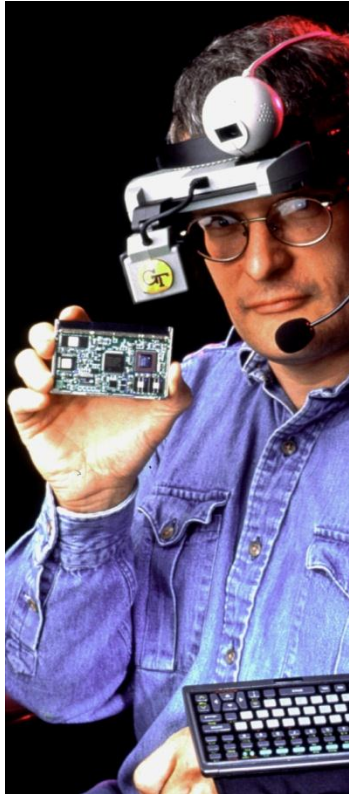
“Providing Effective Memory Retrieval Cues through Automatic Structuring and Augmentation of a Lifelog of Images”



Oxford University



Personal life archives...



A SCIENTIST OF THE FUTURE RECORDS EXPERIMENTS WITH A TINY CAMERA FITTED WITH UNIVERSAL-FOCUS LENS. THE SMALL SQUARE IN THE EYEGASS AT THE LEFT SHOWS THE GEAR

AS WE MAY THINK

A TOP U. S. SCIENTIST FORESEES A POSSIBLE FUTURE WORLD
IN WHICH MAN-MADE MACHINES WILL START TO THINK

by VANNEVAR BUSH

DIRECTOR OF THE OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT

Condensed from the Atlantic Monthly, July 1945

This has not been a scientists' war; it has been a war in which all have had a part. The scientists, burying their old professional competition in the demand of a common cause, have shared greatly and learned much. It has been exhilarating to work in effective partnership. What are the scientists to do next?

For the biologists, and particularly for the medical scientists, there can be little indecision, for their war work has hardly required them to leave the old paths. Many indeed have been able to carry on their war research in their familiar peacetime laboratories. Their objectives remain much the same.

It is the physicists who have been thrown most violently off stride, who have left academic pursuits for the making of strange destructive gadgets, who have had to devise new methods for their unanticipated assignments. They have done their part on the devices that made it possible to turn back the enemy. They have worked in combined effort with the physicists of our allies. They have felt within themselves the stir of achievement. They have been part of a great team. Now one asks where they will find objectives worthy of their best.

There is a growing mountain of research. But there is increased evidence that we are being bogged down today as specialization extends. The investigator is staggered by the findings and conclusions of thousands of other workers—conclusions which he cannot find time to grasp, much less to remember, as they appear. Yet specialization becomes increasingly necessary for prog-

ress, and the effort to bridge between disciplines is correspondingly social.

Professionally our methods of transmitting and reviewing the results of research are generations old and by now are totally inadequate for their purpose. If the aggregate time spent in writing scholarly works and in reading them could be evaluated, the ratio between these amounts of time might well be startling. Those who conscientiously attempt to keep abreast of current thought, even in restricted fields, by close and continuous reading might well shy away from an examination calculated to show how much of the previous month's efforts could be produced on call.

Mendel's concept of the laws of genetics was lost to the world for a generation because his publication did not reach the few who were capable of grasping and extending it. This sort of catastrophe is undoubtedly repeated all about us as truly significant attainments become lost in the mire of the incosequential.

Publication has been extended far beyond our present ability to make use of the record. The summation of human experience is being expanded at a prodigious rate, and the means we use for threading the tape of the conquest have to the momentarily important item is the same as was used the days of square-rigged ships.

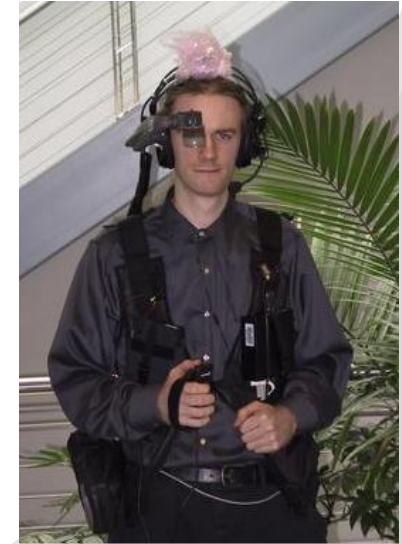
But there are signs of a change as new and powerful instrumentalities come into use. Photocells capable of seeing things in a physical sense, x-ray photography which can record what is seen or even what is felt, thermionic tubes capable of controlling potent forces under the guidance

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「LIFE」1945年9月10日号に特集された「AS WE MAY THINK」のページ

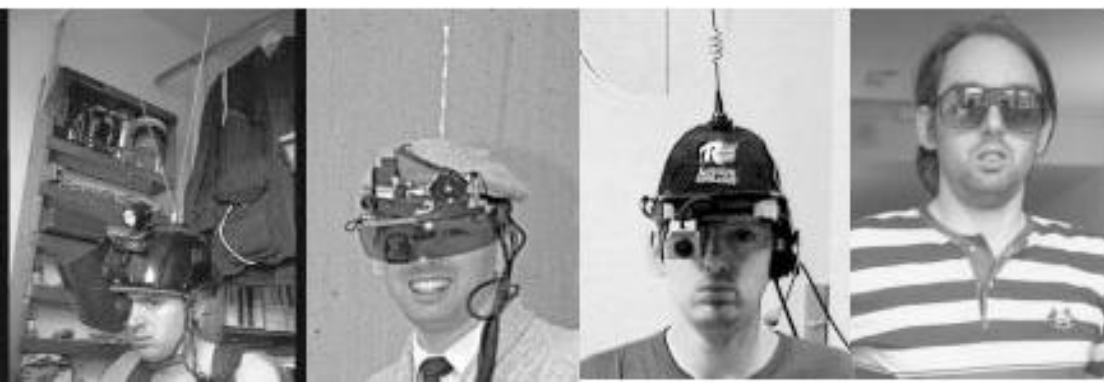
「LIFE」1945年9月10日号より引用

「AS WE MAY THINK」 From the Atlantic Monthly, July 1945



Visual Lifelogging Devices

Much past research focus on miniaturising hardware and increasing battery-life + storage e.g. visual lifelogging domain



Steve Mann. Wearable computing: a first step toward personal imaging. *Computer*, 30:25–32, Feb 1997.

TIMELINE



Tano *et. al.* University of Electro-Communications, Tokyo, Japan



Microsoft Research SenseCam

Our wearable sensors

SenseCam is a Microsoft Research Prototype... now the Vicon Revue

Contains a camera and various sensors

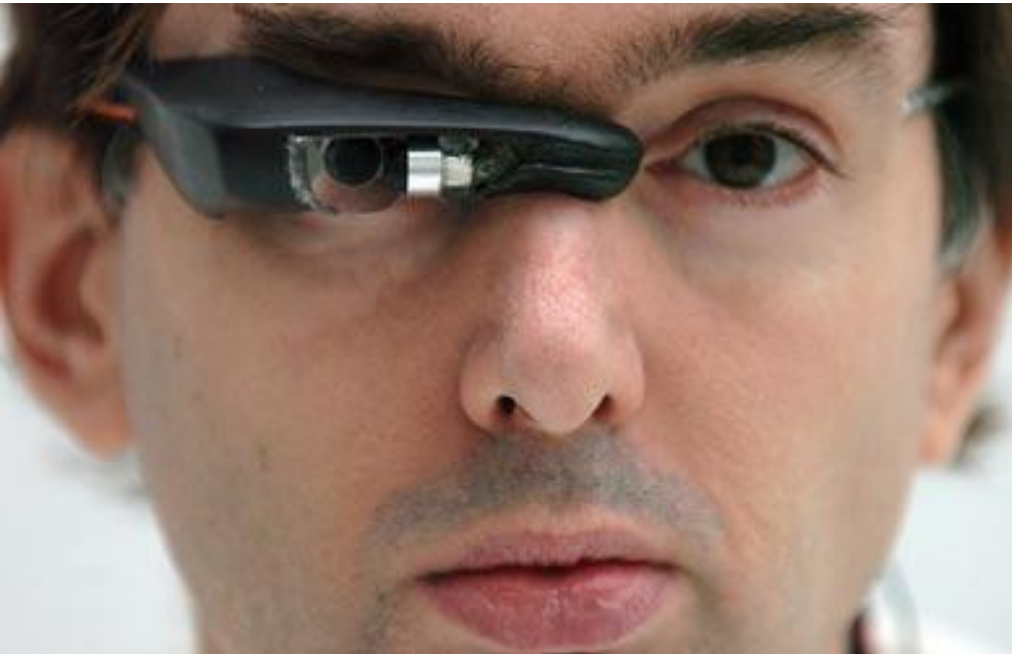
Addition of GPS and Bluetooth

Takes about 5,500 photos per day



Steve Mann, U Toronto is a pioneer, trailblazer, geek, rights activist, who has become physically dependent on his Eyetap for vision, and has had this validated in court.

His technology is a camera and screen projection directly in front of his left eye.



Eyetap

By Self-assembled (Steve Mann)

Cost Variable, recommended to buy Mann's book

Sensors Build your own

Image quality Variable, depends on camera used

Video? Yes

Capacity based on compression, appears to be AV output

Battery Life depends on battery used

Cute, but where does the AV cable go ?



Tie Hidden Camera

By Brickhouse security

Cost \$199.95

Sensors No other sensors

Image quality NTSC, 350 Resolution TV
Lines

Video? 30fps

Capacity AV cable out

Battery Life No details given, 8AA
batteries

Again .. The AV camera ? It's a capture device, not a capture and store device



Homemade spy camera glasses

By Self-assembled

Cost depends on equipment, as little as \$40

Sensors No other sensors

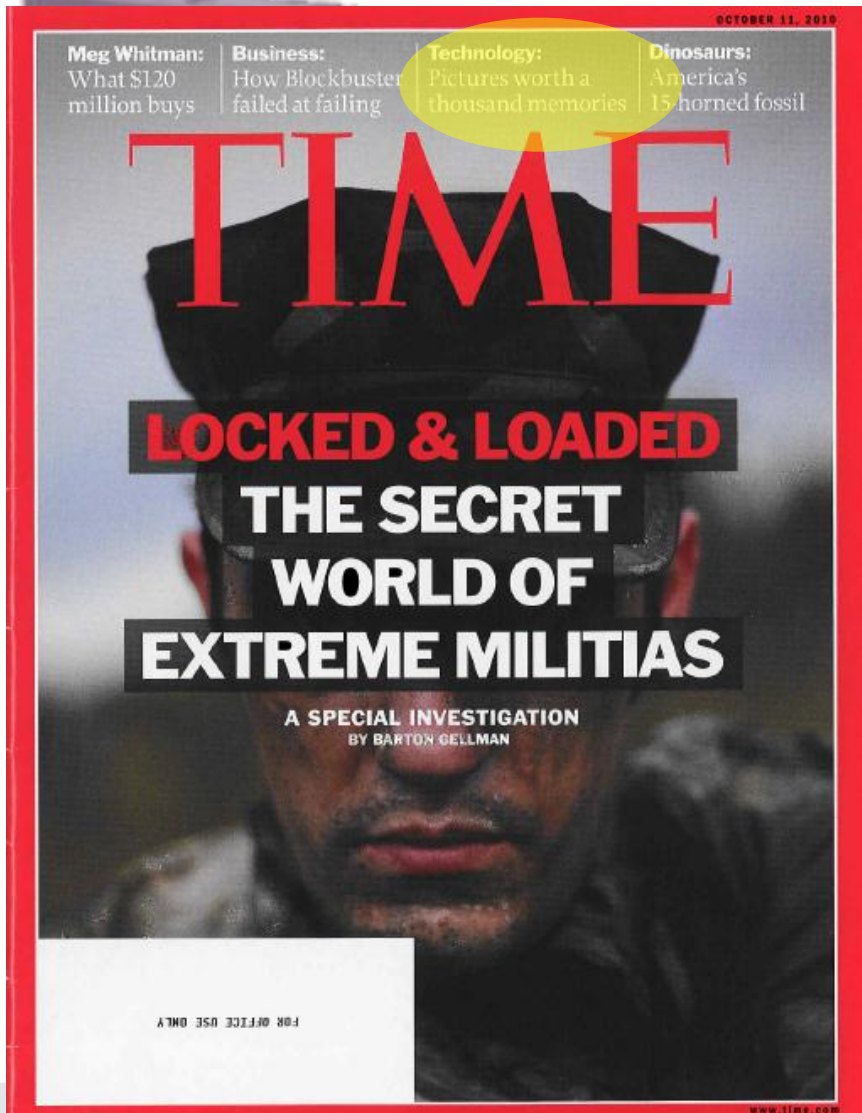
Image quality Variable, depends on camera used

Video? Yes

Capacity AV cable out

Battery Life No details given

Visual Lifelogging Devices



TECHNOLOGY

Remains Of the Day. Can a new device help amnesia patients outsource memory?

BY EBEN HARRELL



CLAIRE ROBERTSON WAS IN THE CHANGING room at her local swimming pool when she glanced up to see a woman looking at her. The woman had a nice face—warm, searching blue eyes; a hesitant smile—but seemed unsure of what to say. This often happens to Claire, a 49-year-old former nurse who six years ago suffered brain damage due to a rare viral infection called herpes encephalitis. Now an amnesiac who is unable to recognize faces, Claire lives in a world in which even her lifelong friends appear as strangers. Her husband Ed wears a distinct shark-tooth necklace at all times to help her identify him.

Memory is so foundational to friendship that even those aware of Claire's brain injury often wait a second or two upon seeing her before reintroducing themselves, hoping their presence might spark a flicker of recognition—which of course it never does. Claire assumed that was the case with the woman across

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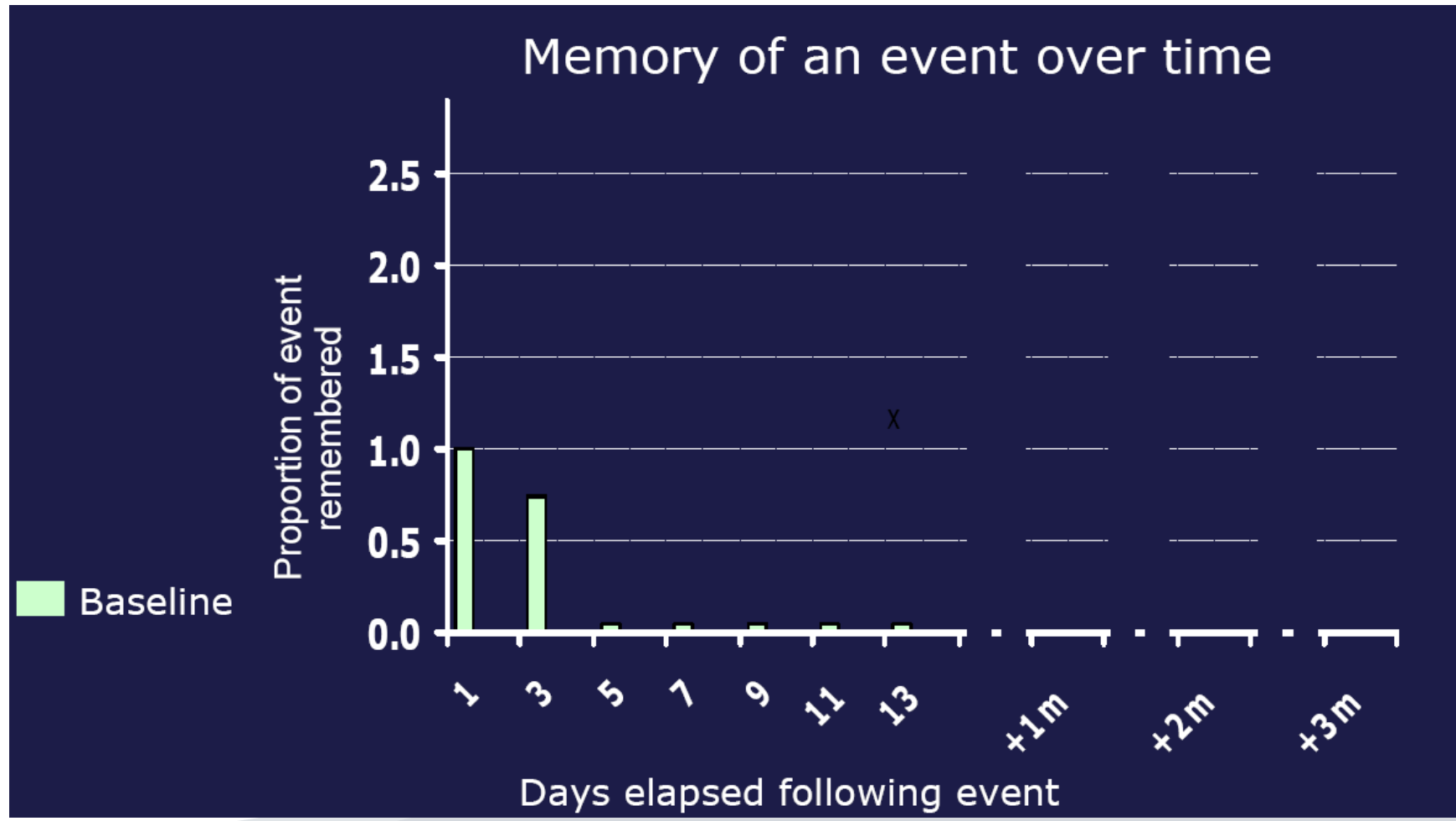
The Sensecam Because of a brain injury, Claire, left, cannot access memories of her life experiences. But a small camera that hangs from her neck and takes a photograph every 30 seconds provides a downloadable record of her daily activities—like playing cards.



Wow, let's take a little break for a minute!

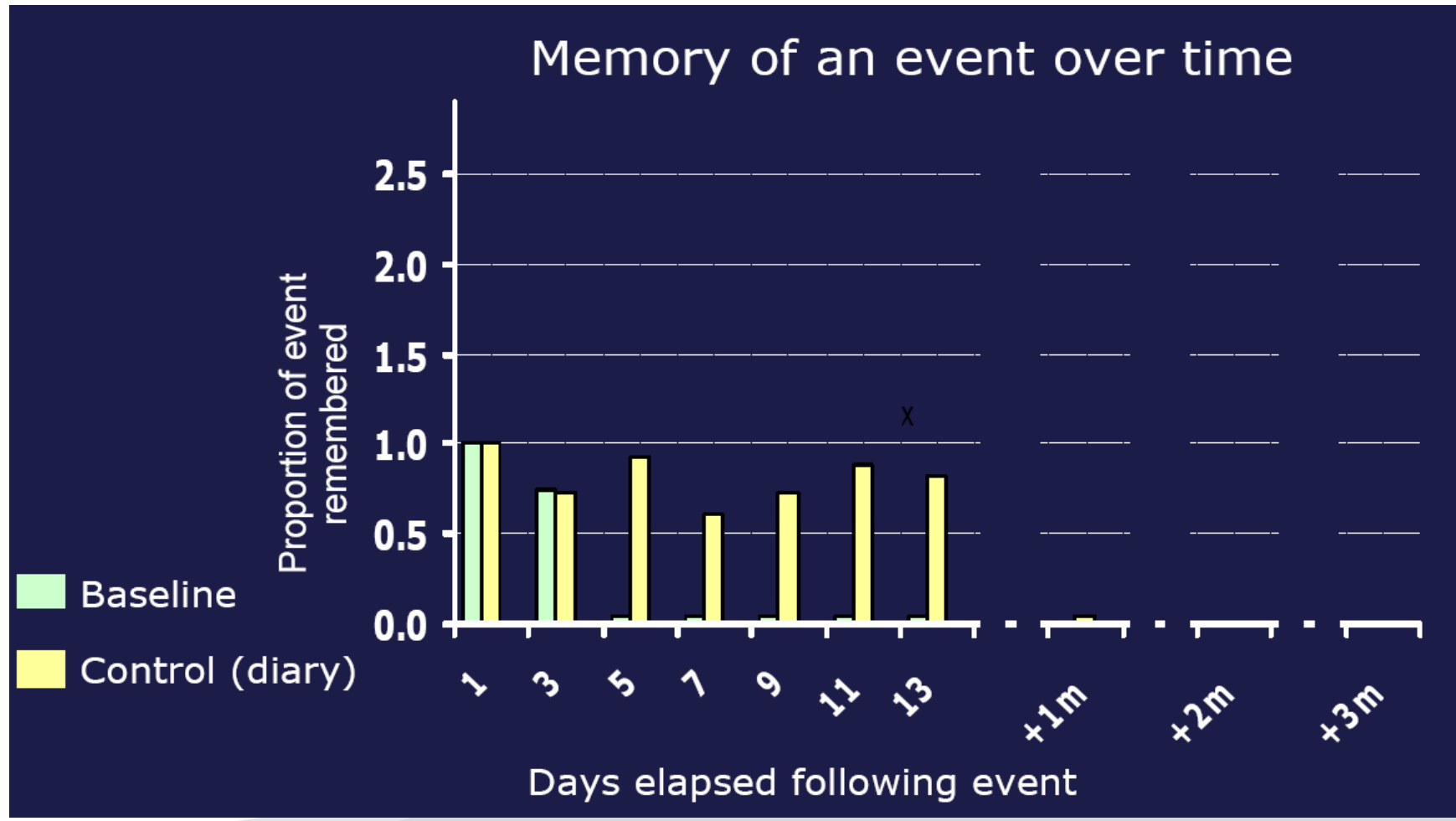
A day in the life of...

Supporting those with dementia...



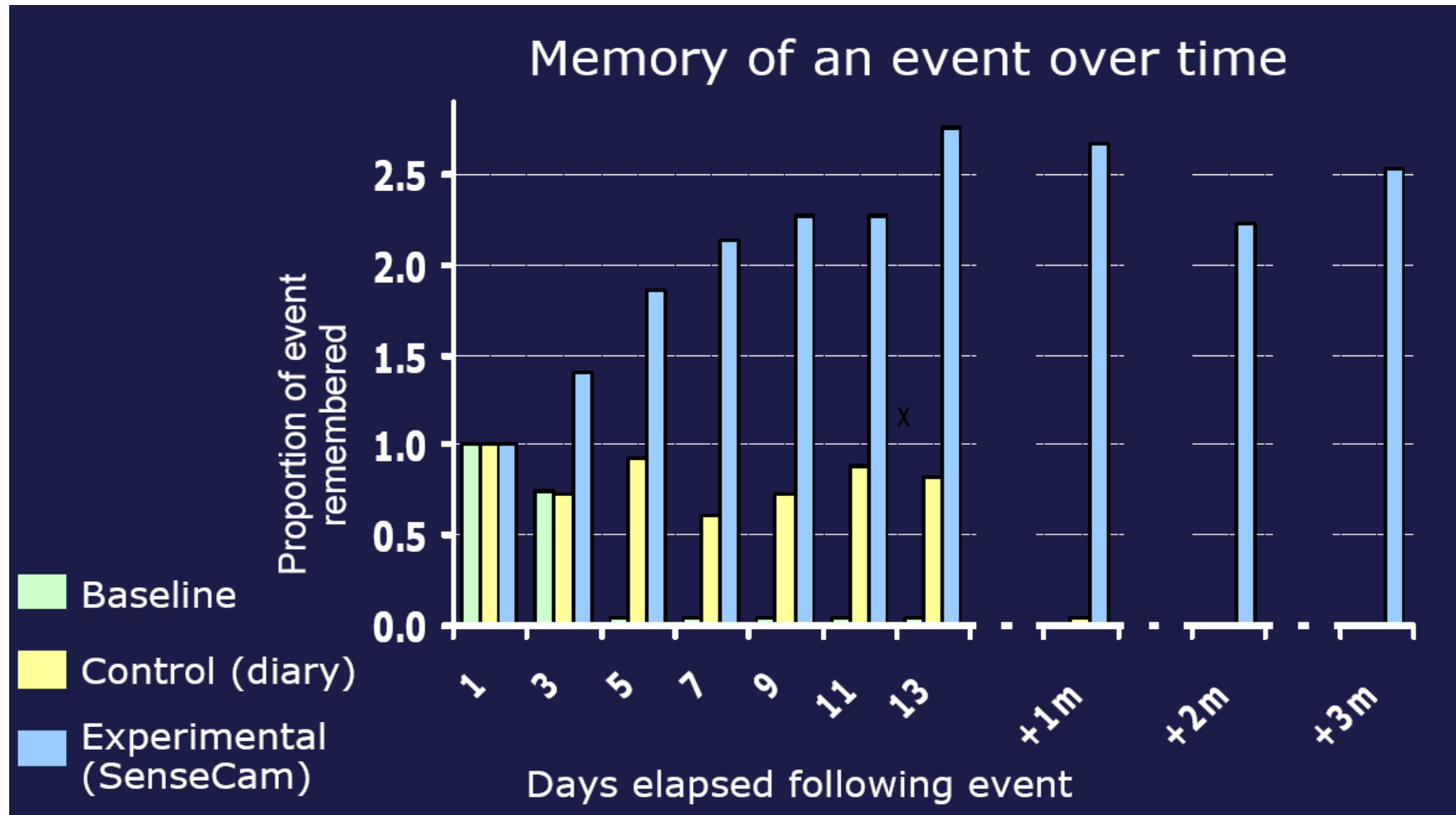
Microsoft Research Cambridge presentation: http://research.microsoft.com/~shodges/presentations/UBICOMP_senseCam.pdf

Supporting those with dementia...



Microsoft Research Cambridge presentation: http://research.microsoft.com/~shodges/presentations/UBICOMP_senseCam.pdf

Supporting those with dementia...



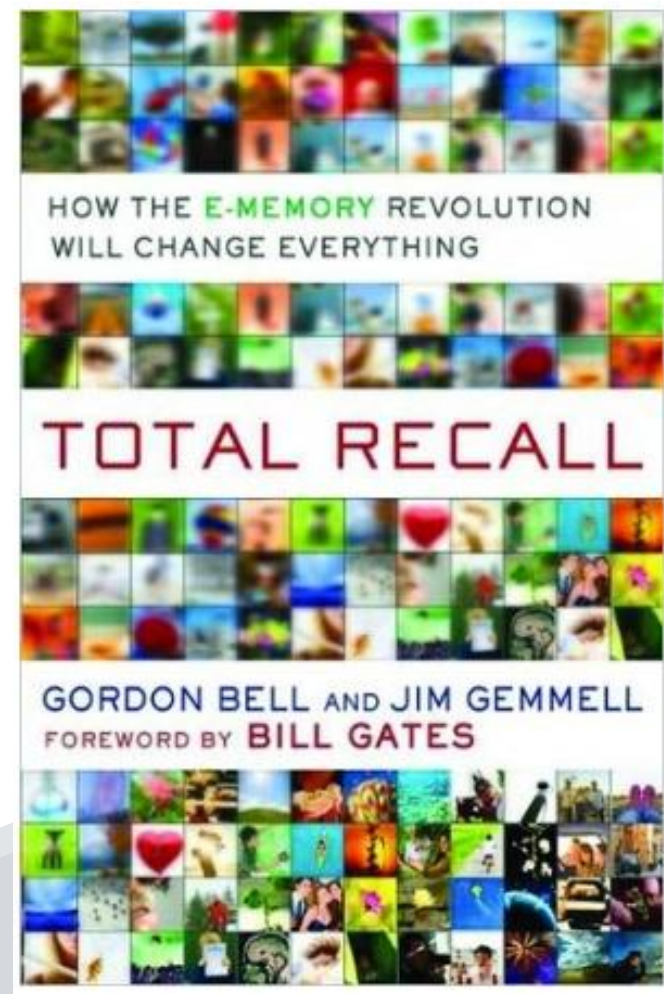
Microsoft Research Cambridge presentation: http://research.microsoft.com/~shodges/presentations/UBICOMP_senseCam.pdf

Novel Uses...

Total Recall by Jim Gemmell & Gordon Bell

- Foreword by Bill Gates

Mr Lee, the lifelogging cat.



So how do I use the SenseCam?

Let's hear the opinion of James May, the UK Top Gear Presenter...

Then hands on look at the images...

Browser features...

Downloading images from SenseCam

Showing how to delete images participants may be uncomfortable with

Labelling events of interest

Charging SenseCam



Released SenseCam Software

SENSECAM VIEWER

Friday
09 October 2009

1541 Photos (13:34 - 18:48)
You can touch one of the events below to view the photos within it.

Show Calendar
Touch the button above to view different days

<http://sensecambrowser.codeplex.com>

- St. Vincent's Hopsital, Dublin
- MRC Cognition and Brian Sciences Unit, Cambidge
- Halvar Jonson Centre for Brain Injury, Canada
- **~400 downloads since release 10 months ago**

Add
Help

Close



Touchscreen SenseCam Software



SENSECAM VIEWER

Friday
08 September 2006

1776 Photos (10:58 AM - 21:47 PM)

Select the time of the day (Morning, Afternoon, Evening).
Then touch one of the events below to view the photos within it.

Morning Afternoon Evening

Show Calendar
Touch the button above to view different days

Add Photos

Help

12:09 pm

12:55 pm WORKSHOP...

14:21 pm

14:29 pm

14:38 pm

Next

Adding your SenseCam Photos
To add photos touch the 'Add Photos' button below.
If you cannot see the button, check the camera, plug your SenseCam into the computer and try again.

July 2009

Mo	Tu	We	Th	Fr	Sa	Su
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

12:21 PM
12:50 AM

WORKSHOP

Touch the button below to type a label for the photos in this event.

WORKSHOP

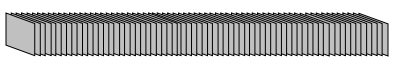
Save Label

- 3 people (aged 60+) used touchscreen version independently for 2 weeks

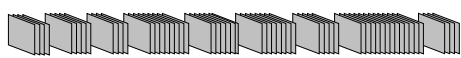
Daily Browser Overview



SenseCam Images of a day (about 3,000)



↓
Event Segmentation



EVENT SEGMENTATION

Using MOTION sensors – very quick & accurate

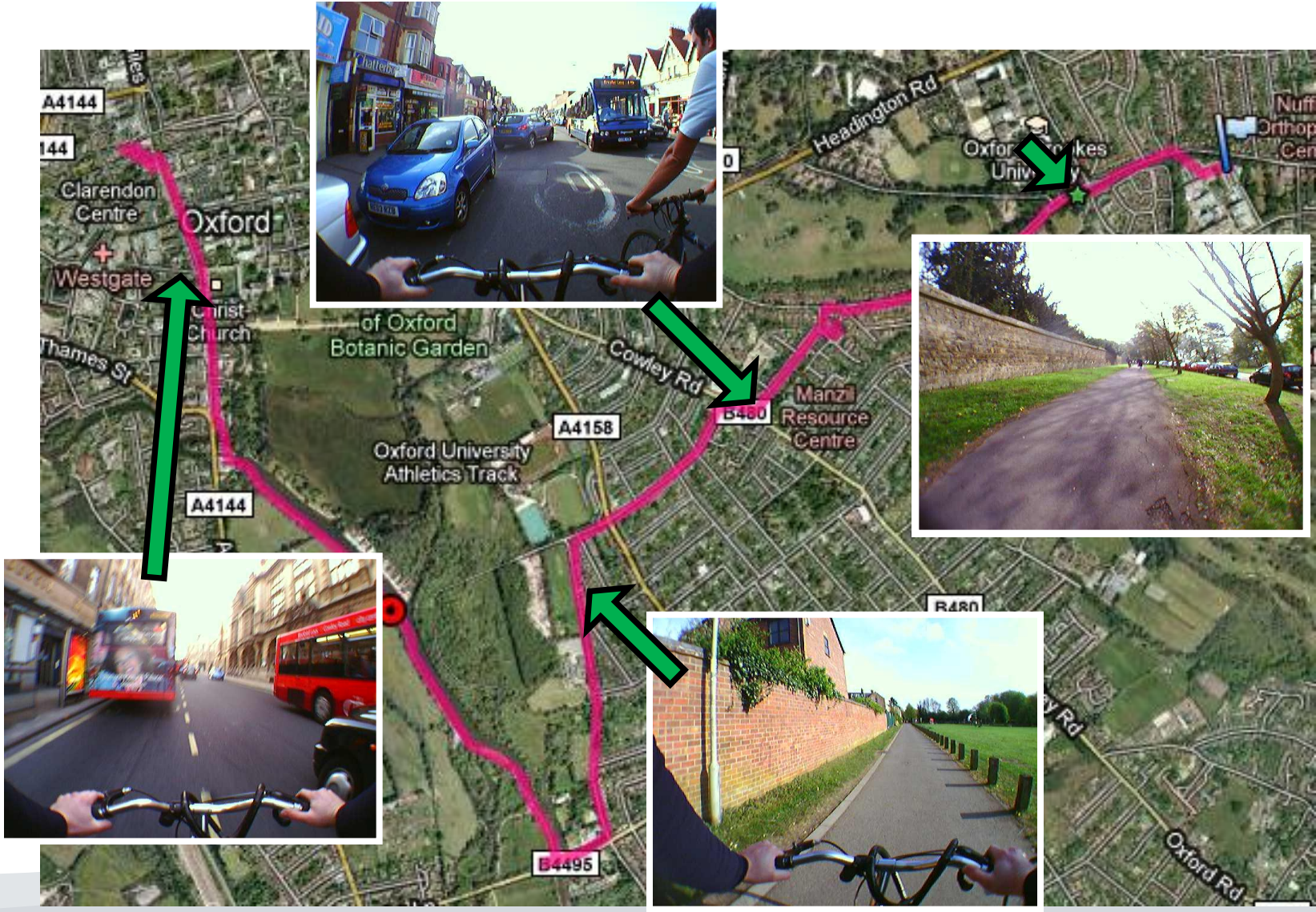


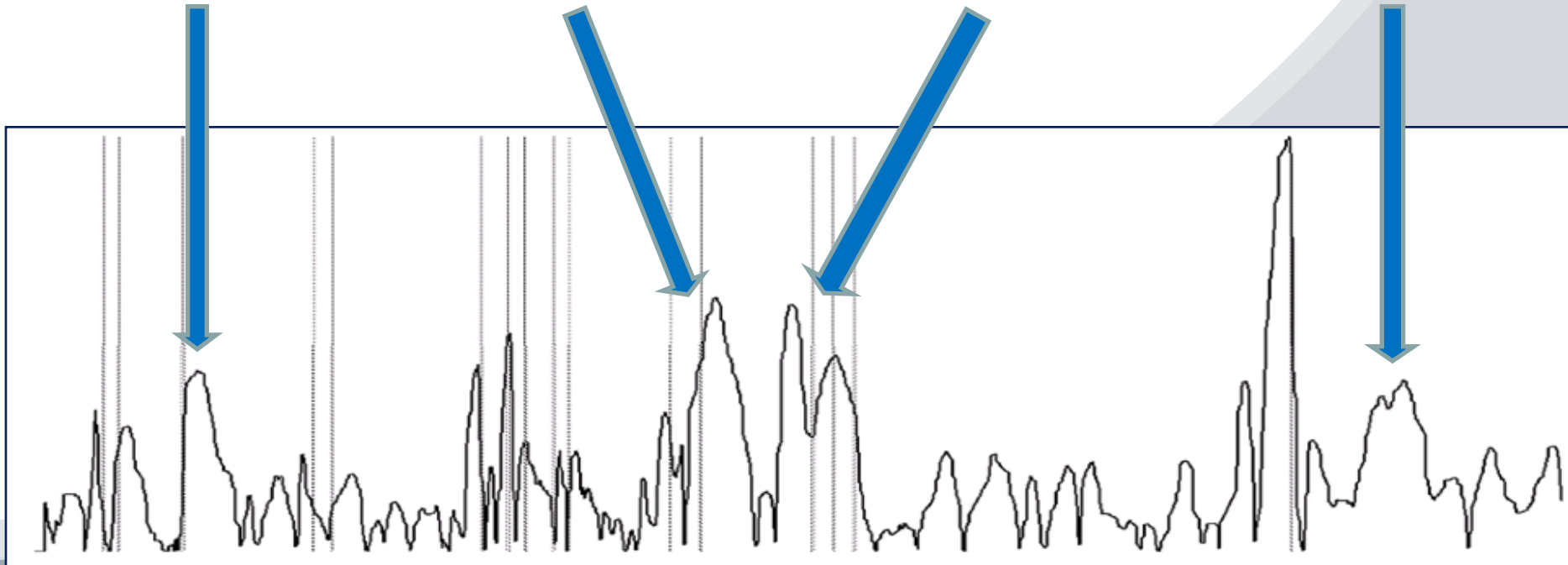
Customised analysis

But I want to do some customised analysis ...

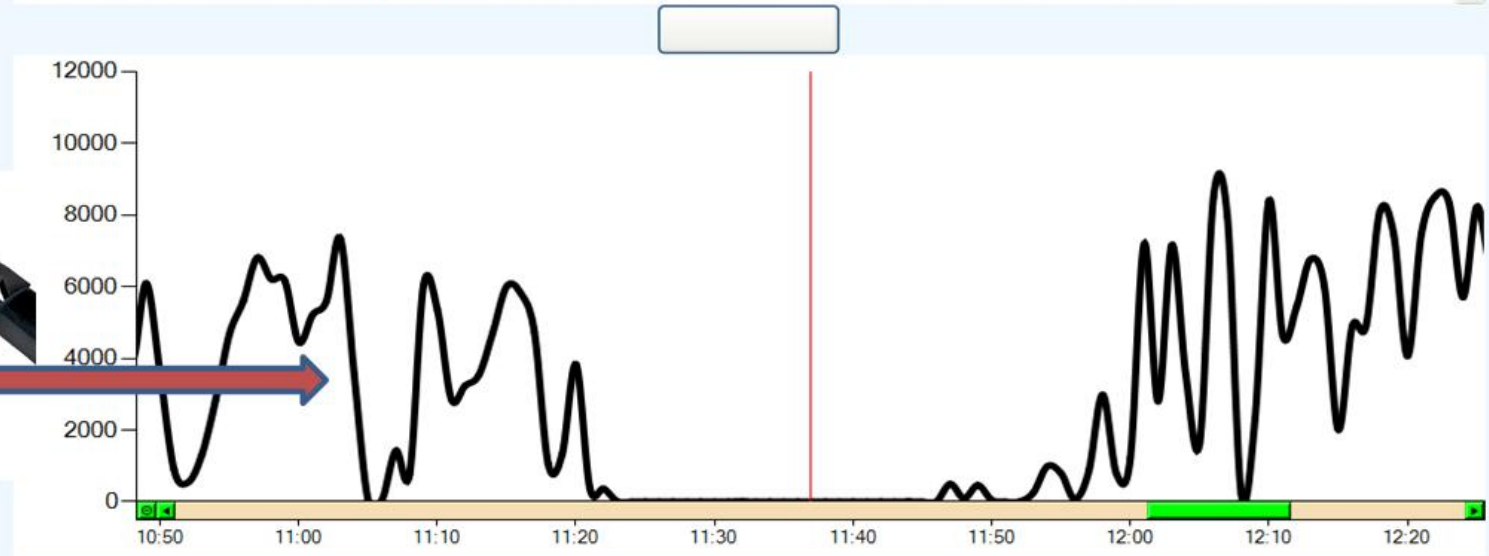
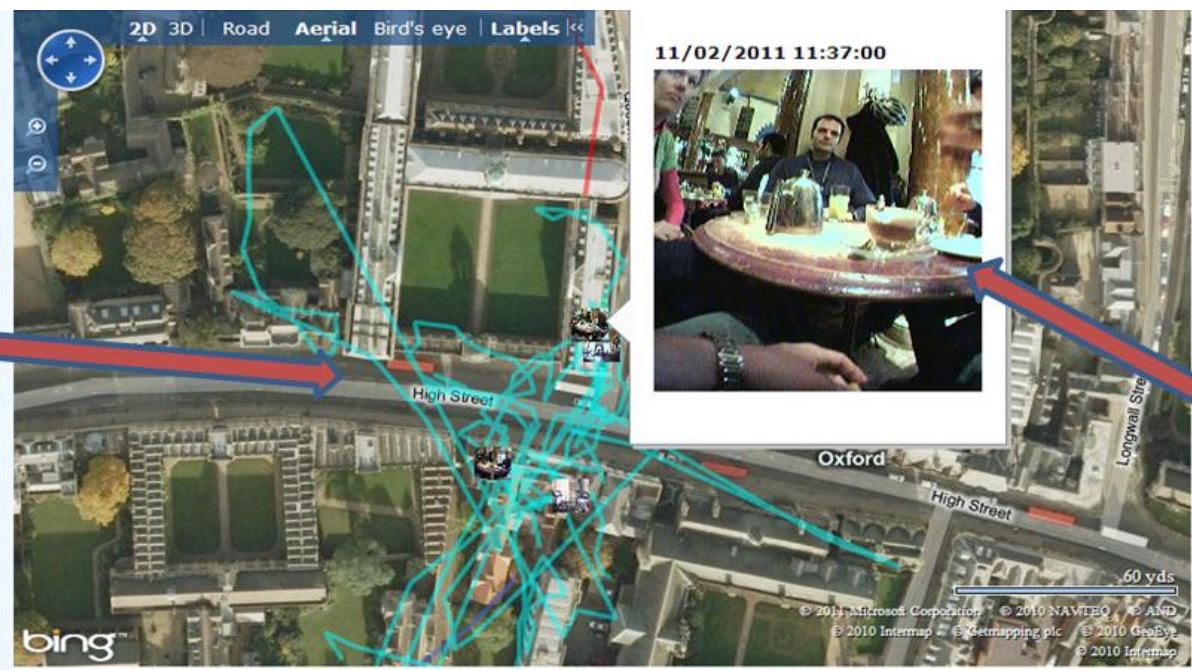
Let's look into the guts of it!

Physical Activity & the Environment





(Wintec WBT202)



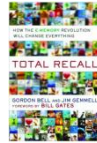
Resources

Time



- <http://www.time.com/time/magazine/article/0,9171,2022652,00.html>

Total Recall



- <http://totalrecallbook.com/>

James May Video

- <http://uk.youtube.com/watch?v=Moxqfeg8dal>

Alzheimer's Video

- <http://www.youtube.com/watch?v=ZwBC82XbNA4>

SenseCam wiki

- http://www.clarity-centre.org/sensecamwiki/index.php/Main_Page

SenseCam browser

- <http://sensecambrowser.codeplex.com/>

Aiden webpage

- www.computing.dcu.ie/~adoherty
<http://www.publichealth.ox.ac.uk/people/academic/aiden-doherty>