BRITISH HEART FOUNDATION HEALTH PROMOTION RESEARCH GROUP

CAN FUTURE PHYSICAL ACTIVITY ASSESSMENT PROCEED WITHOUT THE SUPPORT OF COMPUTER SCIENCE

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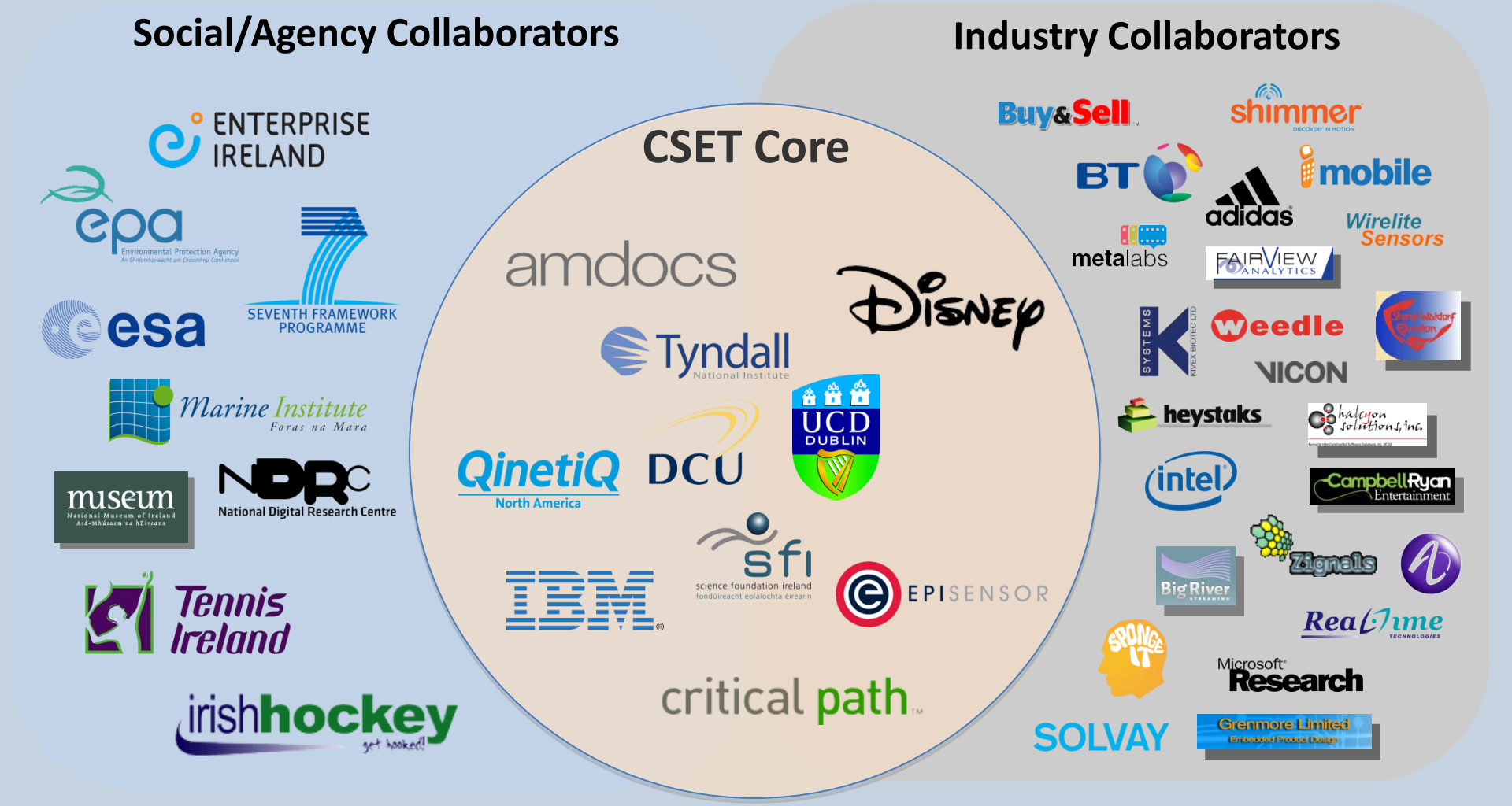
June 18, 2011

18th June 2011 – ISBNPA

CLARITY Centre & Ecosystem



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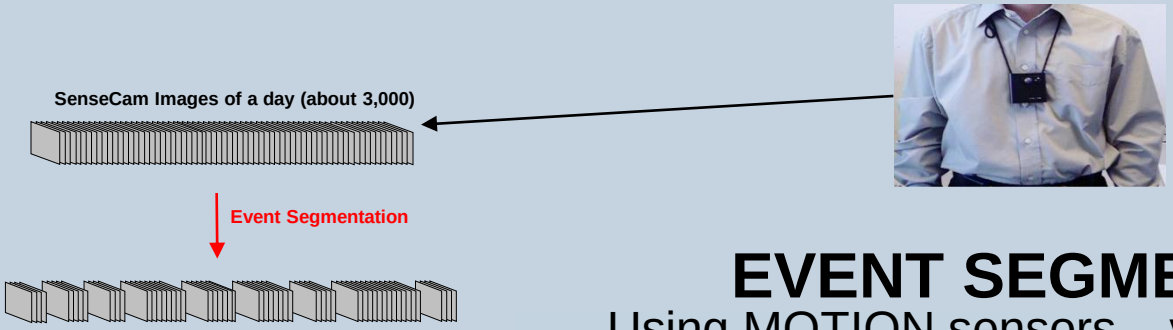
Sensor Data: Public Health vs. Computer Science…

- **Data collection** – no problem
- **Data storage** – seems to be fine
- **Data processing** – very weak
  - Problems in:
    - Combining data from 2+ devices
    - Little use of contextual information
    - Overreliance on thresholds … When will we see "The death of the count" (Simon Marshall)

In the big scheme of things OUR DATASETS ARE NOT BIG…

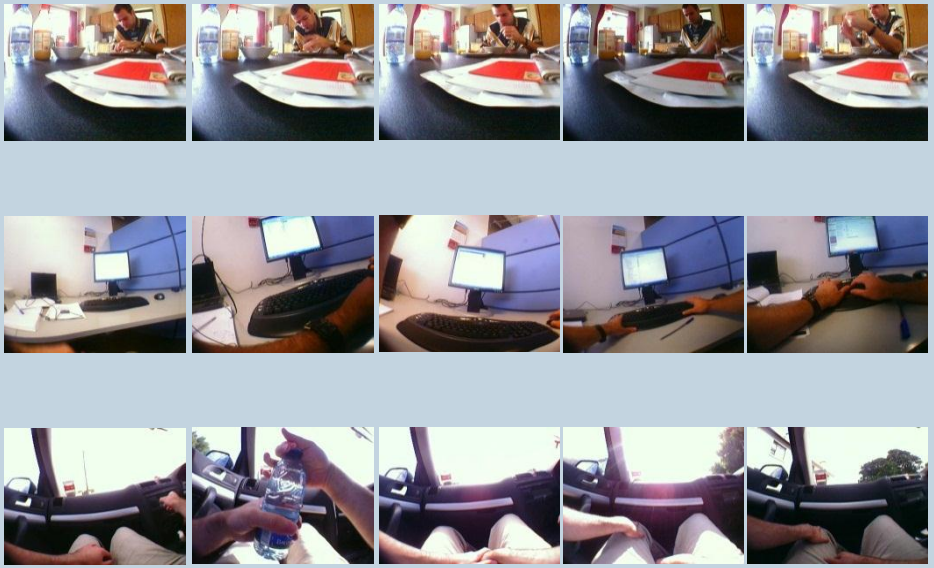
- Flickr – up to 12,000 images per second (2007!)
- YouTube – 20 hours of video uploaded per second (2010)
- Facebook – 500 million users…

Managing SenseCam/Image Data



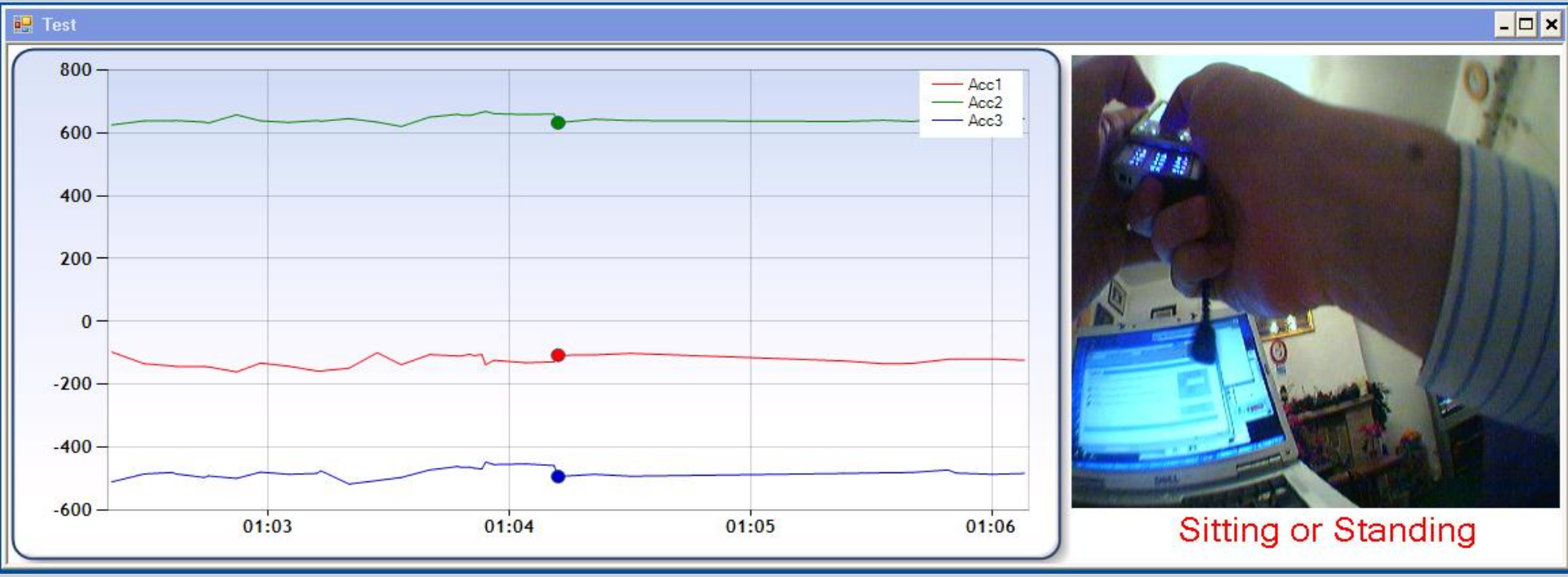
EVENT SEGMENTATION

Using MOTION sensors – very quick & accurate



Doherty, Moulin, Smeaton 2011. Automatically Assisting Human Memory: A SenseCam Browser. Memory (in press)

Sitting Accelerometer Signature



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Walking Accelerometer Signature

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Driving Accelerometer Signature

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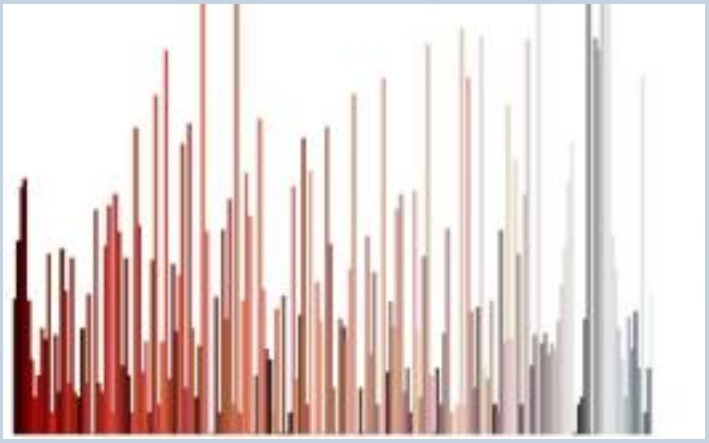
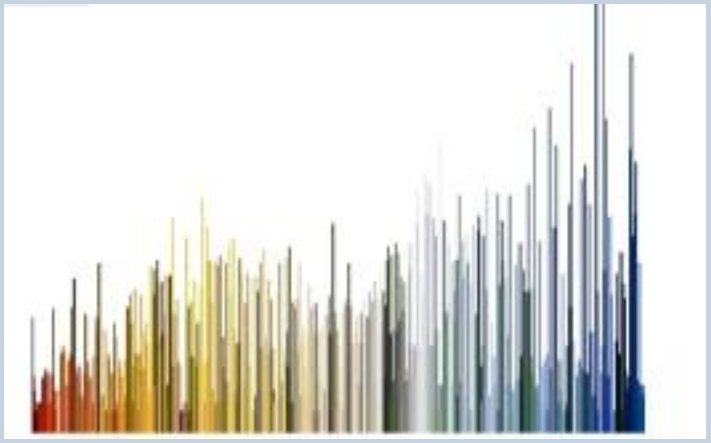
Image Processing

Colour Descriptors





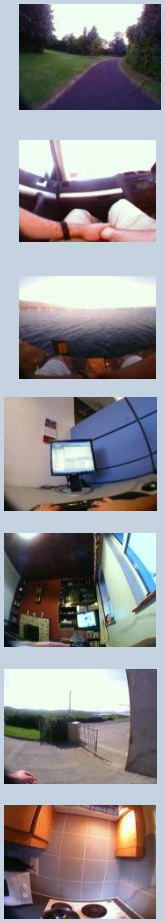
Source:
http://cns.bu.edu/~gsc/ColorHistograms.html

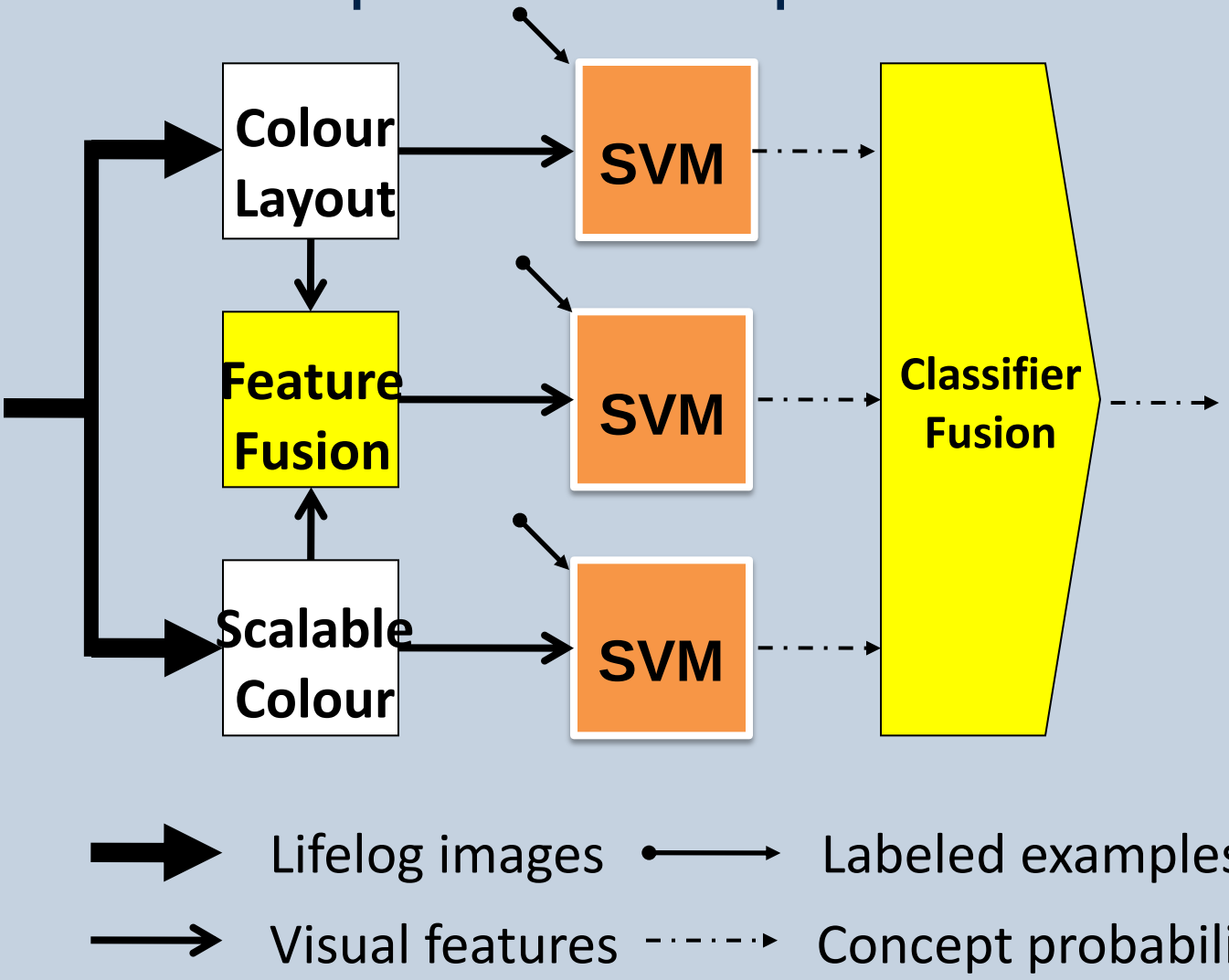
Image Processing

Edge Descriptors

Source:
http://cns.bu.edu/~gsc/ColorHistograms.html

Concept detection process





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Activity Recognition *using Images*

- 27 “activities”
- Validated on 95k annotated images

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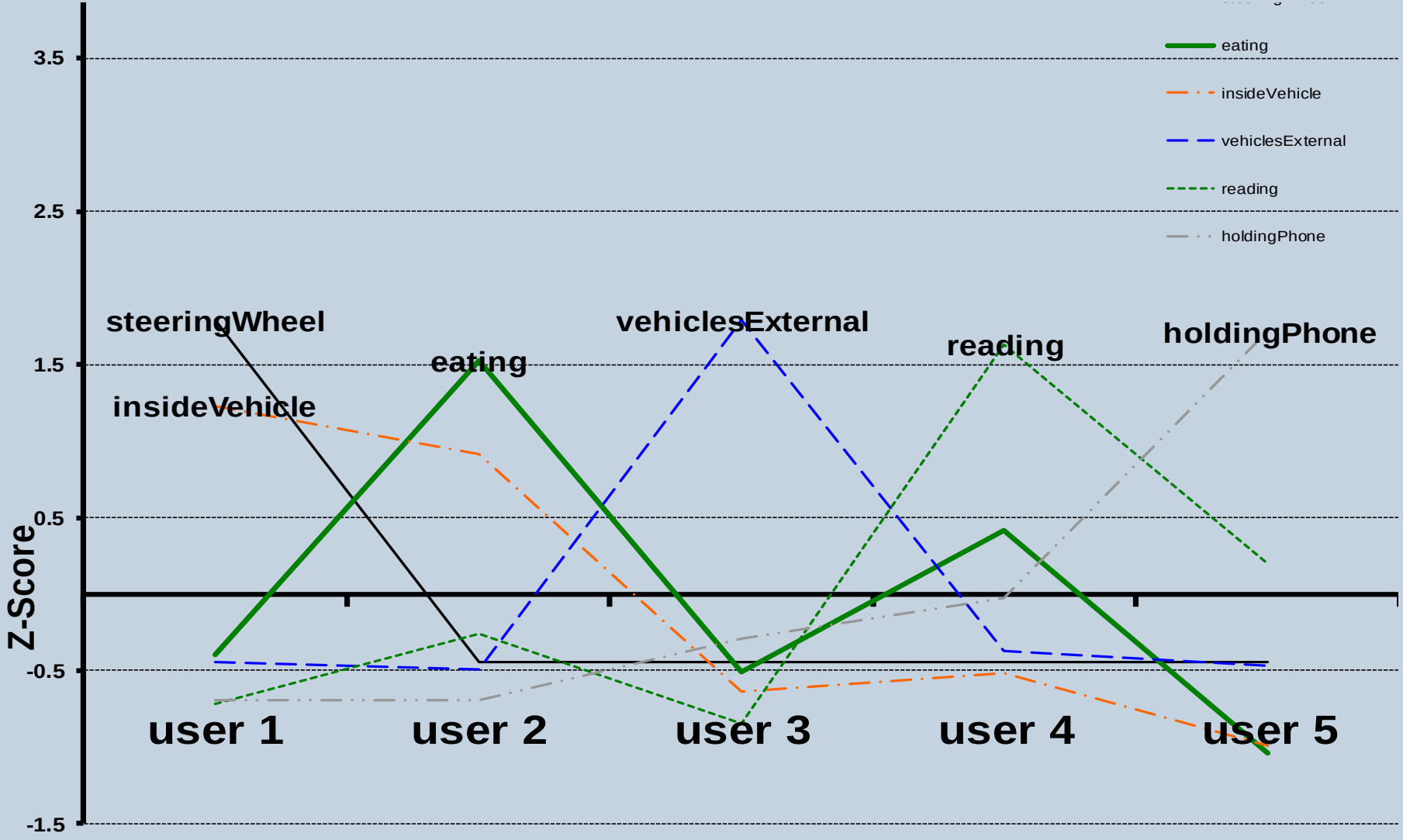
Doherty et. al. 2011. Passively Recognising Human Activities through Lifelogging. CHB (in press)

Comparison of Lifestyle Within People



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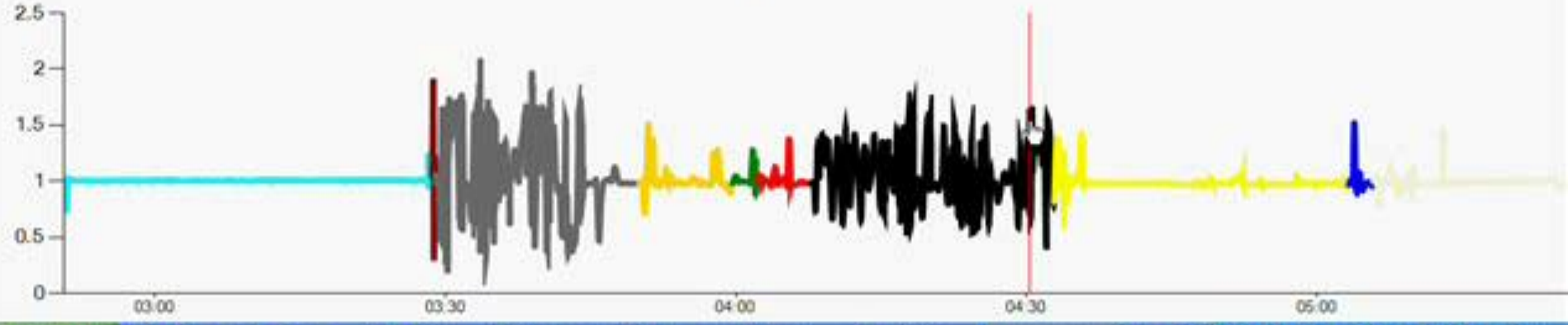
Oxford Acc Context Reinstatement using SenseCam

06/10/2010 16:30:38

Next



start

DCU SenseCam Browser

SENSECAM VIEWER

AidenSed

eating 48m 9s | laptop 104m 56s | on bus 15m 17s | sitting indoors 12m 44s | TV 10m 51

Close

Saturday
15 January 2011

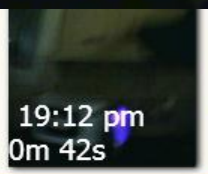
1859 Photos (11:58 AM - 20:24 PM)

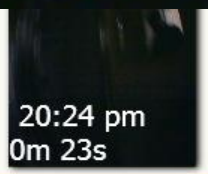
You can touch one of the events below to view the photos within it.

Show Calendar

Touch the button above to view different days

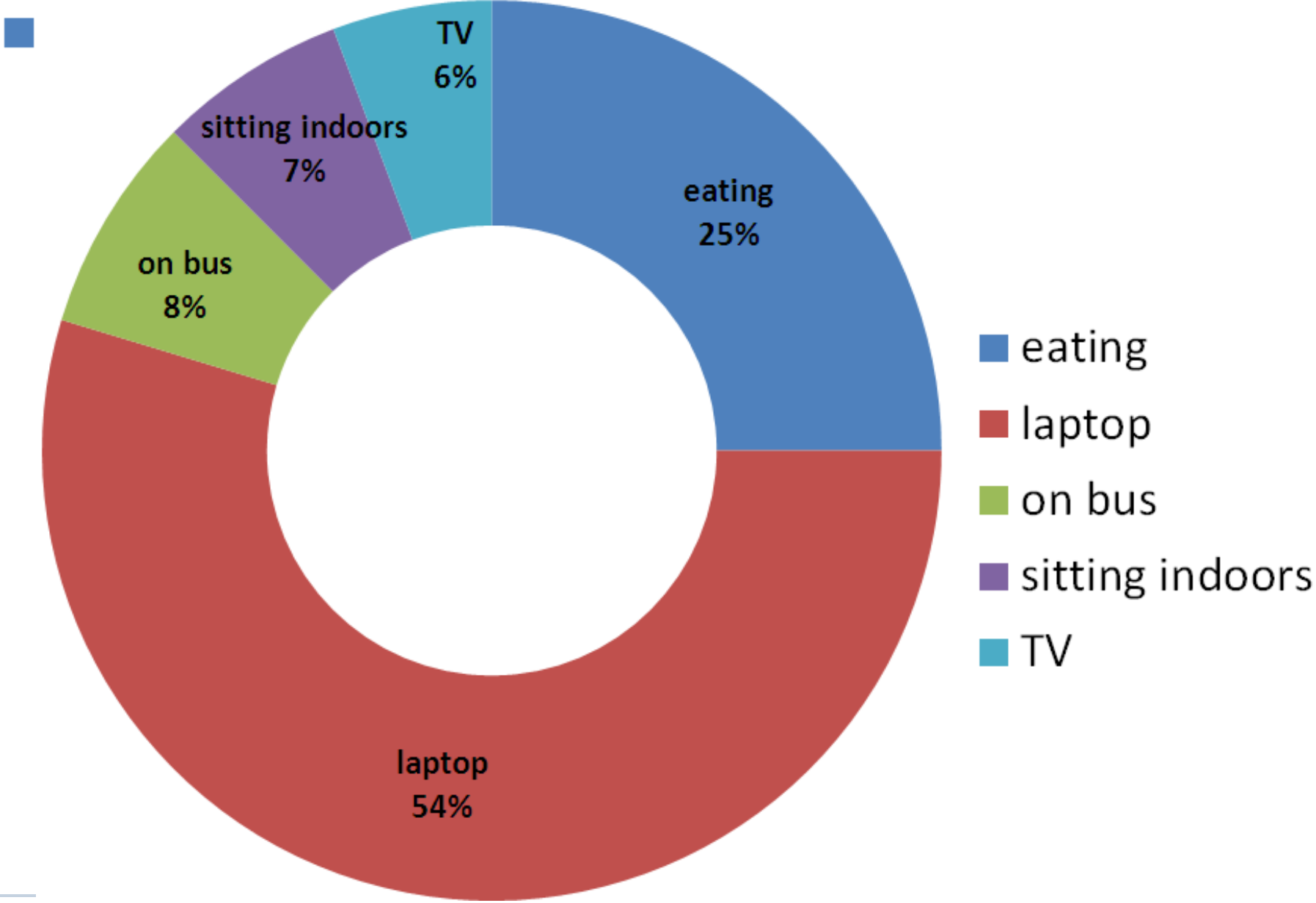
1 on bus 7m 33s
2 sitting indoors 12m 44s
3 eating 4m 42s
4 eating 27m 25s
5 eating 16m 2s
6 TV 10m 51s
7 on bus 7m 44s





Add Photos

Help



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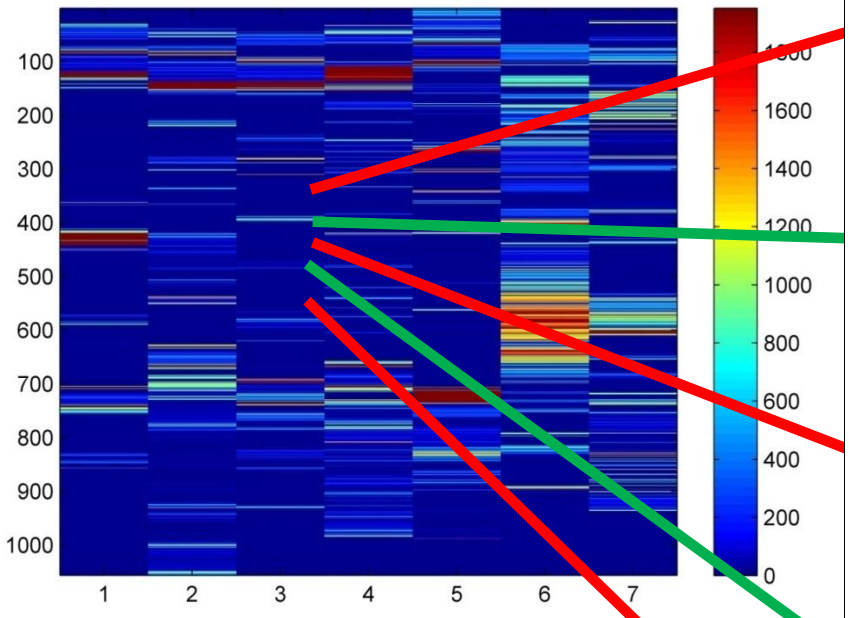
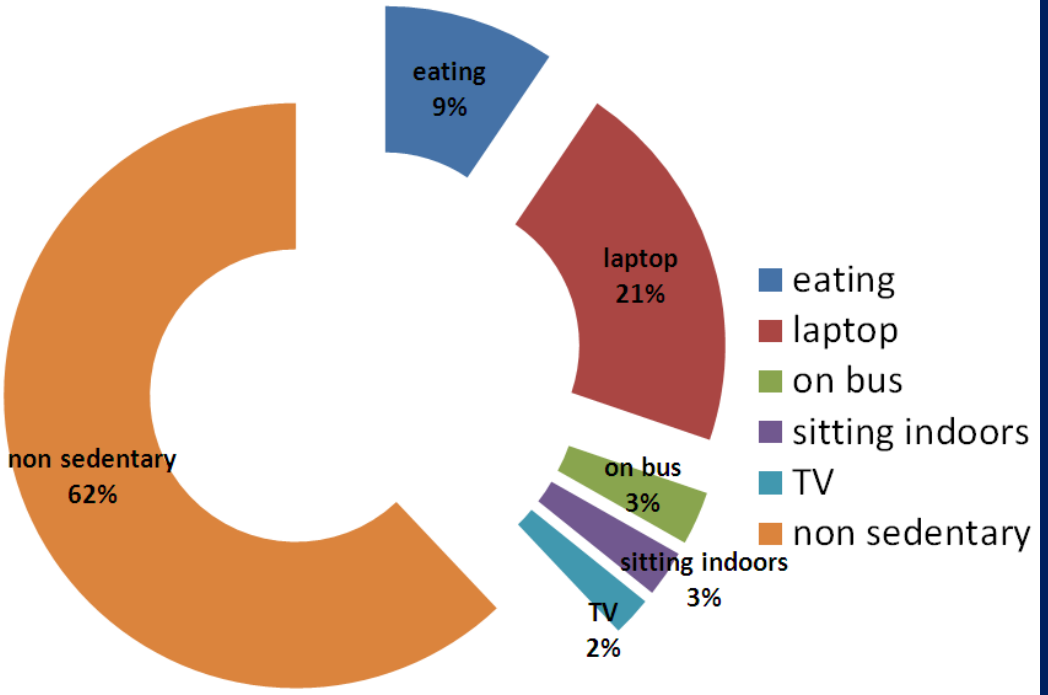
Supporting identification of patterns with recognition of context and purpose…





With sincere gratitude to Neville Owen and all the folk at Queensland and Baker IDI

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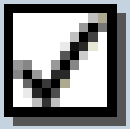
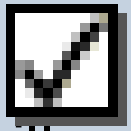
    - *Combining data from 2+ devices* 
    - *Little use of contextual information* 
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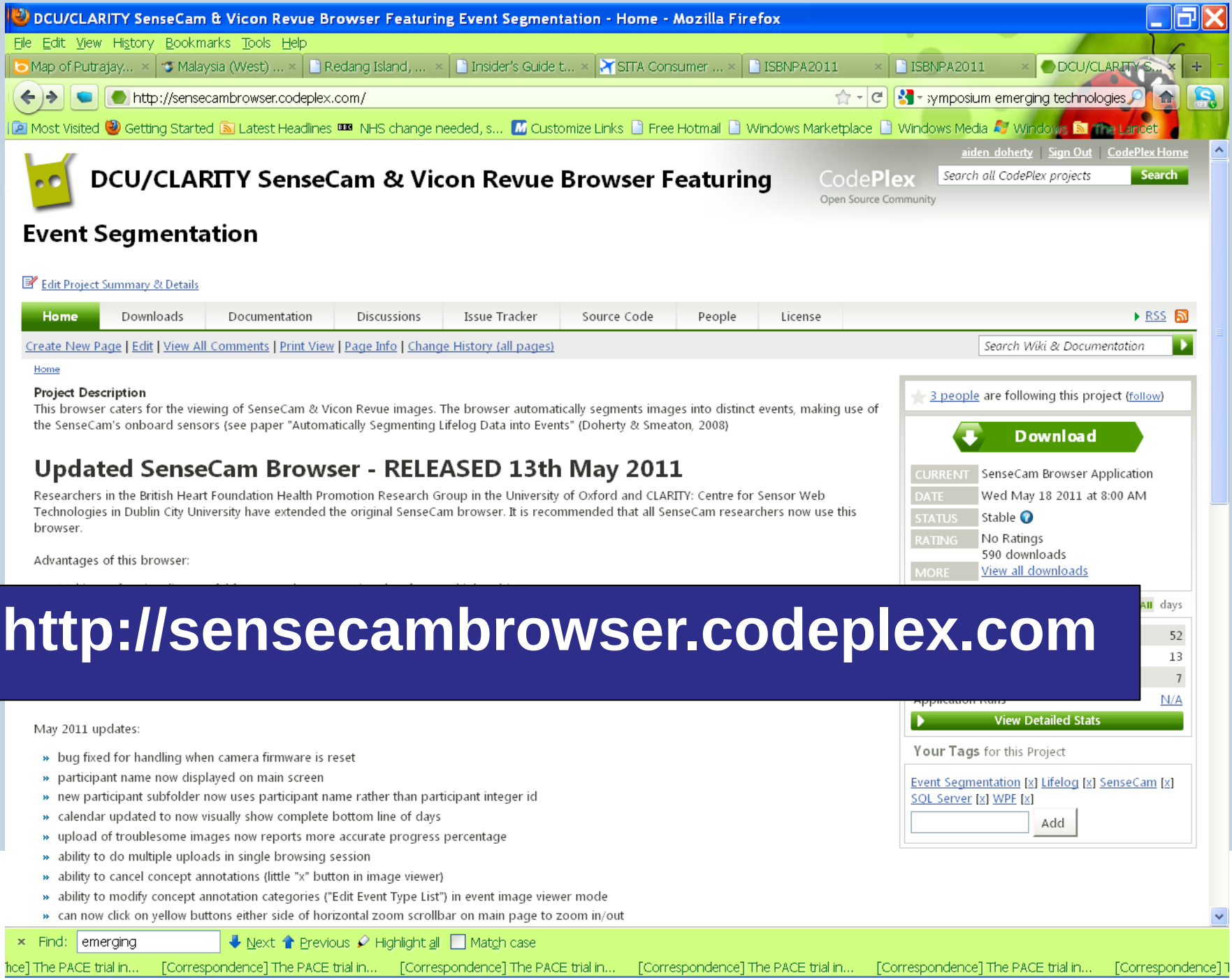
DCU/CLARITY SenseCam & Vicon Revue Browser Featuring Event Segmentation - Home - Mozilla Firefox
http://sensecambrowser.codeplex.com/
DCU/CLARITY SenseCam & Vicon Revue Browser Featuring
Event Segmentation
Edit Project Summary & Details
Home
Downloads
Documentation
Discussions
Issue Tracker
Source Code
People
License
Project Description
This browser caters for the viewing of SenseCam & Vicon Revue images. The browser automatically segments images into distinct events, making use of the SenseCam's onboard sensors (see paper "Automatically Segmenting Lifelog Data into Events" (Doherty & Smeaton, 2008)
Updated SenseCam Browser - RELEASED 13th May 2011
Researchers in the British Heart Foundation Health Promotion Research Group in the University of Oxford and CLARITY: Centre for Sensor Web Technologies in Dublin City University have extended the original SenseCam browser. It is recommended that all SenseCam researchers now use this browser.
Advantages of this browser:
http://sensecambrowser.codeplex.com
May 2011 updates:
bug fixed for handling when camera firmware is reset
participant name now displayed on main screen
new participant subfolder now uses participant name rather than participant integer id
calendar updated to now visually show complete bottom line of days
upload of troublesome images now reports more accurate progress percentage
ability to do multiple uploads in single browsing session
ability to cancel concept annotations (little "x" button in image viewer)
ability to modify concept annotation categories ("Edit Event Type List") in event image viewer mode
can now click on yellow buttons either side of horizontal zoom scrollbar on main page to zoom in/out
3 people are following this project (follow)
Download
CURRENT SenseCam Browser Application
DATE Wed May 18 2011 at 8:00 AM
STATUS Stable
RATING No Ratings
590 downloads
MORE View all downloads
View Detailed Stats
Your Tags for this Project
Event Segmentation [x] Lifelog [x] SenseCam [x]
SQL Server [x] WPF [x]
Add
Find: emerging
Next Previous Highlight all Match case

3rd SenseCam Symposium

3rd & 4th April , 2012 Exeter College, Oxford University, U.K.

Inter-disciplinary mix of researchers, clinicians and practitioners.

Applications for using this technology in research for both physical activity & nutrition behaviours.

To get on mailing list, email

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