Cognitively Motivated Lifelog Software
What works and what frustrates?

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Personal life archives...
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

- Our own smartphone App
  - Integrates all sensors above
  - Can connect to external capture devices
  - Uploads to a server in real-time
What is in an E-memory Archive?

- We use sensors to capture and understand life activities
  - Physical and virtual sensors

- We gather
  - Visuals (photo or video)
  - Locations (GPS and setting detection)
  - Activities (acceleration)
  - Person Interactions (bluetooth)
  - my communications
  - my media consumption
  - but no audio...

- My archive is now 4.5 years in size with over 7,000,000 photos.
Visuals are Powerful Memory Clues
In one year we typically collect...

- 394,000 minutes if an 18 hour day
- 12,500 events or moments
  - 120 images or 31 minutes of video each
- 20 million accelerometer and temperature and compass readings
- 2.3 million GPS points
- 25,000 unique Bluetooth encounters
- ... and so on...
How to organise it all?

SenseCam Images of a day (up to 5,000)

Event Segmentation

Event-Event Comparison within the Multi-day Event database

Event database containing last 7 days’ Events

Novelty Calculation of Each Event

Interactive Browser

Composition of the Browser

Landmark Image Selection

0.1 0.7 0.1 0.3 0.4 0.8 0.1 0.9
Applying 12 years of video/image search experience...
Applying 12 years of video/image search experience…

Events

Important Events

Search
Applying 12 years of video/image search experience…

- Location search
- Flexible time search
- Search automatically identified activities
Experimental Timeline

- 1 healthy subject -> 2.5 years of SenseCam images (May ’06 – Dec ’08)
  2,579,455 images (3,080/day) = 29,301 events (35/day)

- average daily duration = 14 hours 22 minutes
“Multiaxes” browser – better search

Finding one event in 30,000 over past 2.5 years:
Original efforts = 12m 54sec on average!
Multiaxes browser = 2m 7sec on average
A more broad reflection

• Some initial “guesses” were good
  • Segmenting material into events
  • Boosting distinct events

• Search by location appears helpful
  • May be an artefact due to the volume of travel Cathal is involved in, so events likely to be more distinct by locations

• We’re still struggling with linking
  • Visually associating events is best, but still not good enough

• Slick UI is very important
  • Even expert users get overwhelmed with too many features on offer
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What our team of 18 are working on...
• ~40 publications available at http://www.cdvp.dcu.ie/SenseCam/publications.html
• Psychological aware retrieval
• Lifestyle analysis of lifelogs for health & marketing applications
• Visual lifelogging on cell phone
• We’re always open to collaboration!!