

SENSECAM ARCHIVE BROWSING

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The iCLIPS project is researching into technologies to facilitate more effective browsing and searching of multimodal digital lifelogs. To date we have captured 18 months of lifelog data for 3 main subjects with 1 month augmented with biometric data.

Using this biometric data, in this study we investigate the utility of observed galvanic skin response (GSR), heart rate (HR) and skin temperature (ST) at time of item capture to indicate future importance of SenseCam events within lifelogs.



PERSONAL LIFELOGS (PL)

Possible to capture and store life experiences in digital Personal LifeLogs (PL) including:

SenseCam:

Worn continuously by subjects, forming a visual log of their activities.

Biometric Devices:

- Polar heart rate monitor: captures HR (once every 5 seconds).
- BodyMedia Sensewear armband: captures GSR (once per second), ST (once every 10 seconds) and energy expenditure (once per minute).

Computer & Mobile Phone Activity:

Items read, written or downloaded on PC, e.g. Word documents, emails, web pages, & SMSs sent and received on mobile phone.

Rich Context Data:

Geo-location, people present, weather, date time information etc.



CHALLENGE

Techniques to locate interesting/important events for individuals browsing through their lifelogs are required.

PROPOSAL

We propose that events which are important to an individual at the time they occurred may be useful to the individual or interesting to view again in the future, and that such incidents are associated with max GSR and HR readings and with min ST readings.

KEY FINDINGS

- GSR and ST potential sources of evidence for selection of SenseCam images.
- Images in which people are present are generally more interesting, with the exception of when individual is in novel location.

FUTURE WORK

- Further investigation using more reliable HR devices.
- Improved techniques for locating interesting events – e.g. using combinations of GSR, ST & HR, dividing by energy expenditure.

PRELIMINARY STUDY

- 3 participants
- 1 month
- Recorded biometric data, SenseCam images and computer activity.

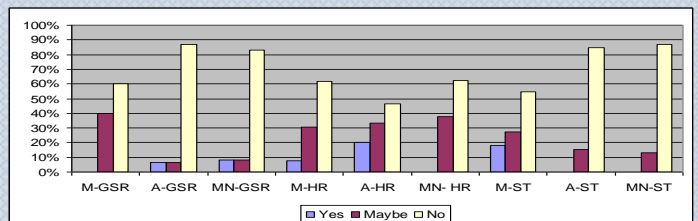
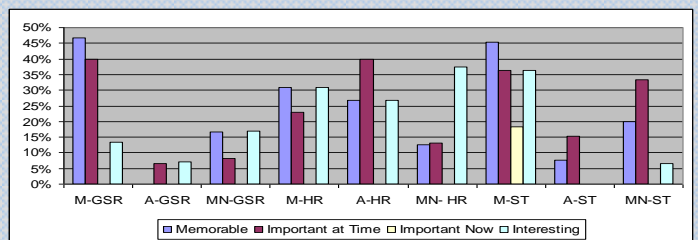
PROCEDURE:

1. Remove periods of physical activity (high energy expenditure)
 - Average of energy expenditure * δ .
2. Determine begin & end timestamp for period of max GSR & HR.
 - GSR threshold: average of GSR * α
 - HR threshold: average of HR * β
 Determine begin & end timestamp for period of min ST.
 - ST threshold: average of ST / γ
 - (Above/below threshold for X seconds)
3. If no computer activity between begin and end timestamp extract SenseCam images.
4. Repeat steps 2 & 3 until ≤ 5 SenseCam events obtained for each of GSR, HR & ST.
5. Determine periods of average and min biometric response for comparison purposes.
6. 9 months after collection period subjects rated the ≤ 45 events.

RESULTS:

Subjects would or might want to retrieve 40% of max GSR SenseCam events and 45% of max ST SenseCam events.

Percentage of SenseCam events for max (M), average (A) and min (MN) GSR, HR and ST the subjects (i) considered memorable, important at the time, important now, and are interested in viewing now, (ii) would (Yes), might (Maybe) and would not (No) want to view again.



FURTHER INFORMATION

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