

DIGITAL LIFE STORIES: NARRATING PERSONAL EXPERIENCE FROM SENSECAM COLLECTIONS

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OVERVIEW

MOTIVATION & GOALS

The SenseCam provides a **unique tool** to digitally sample life experiences and therefore enables wholly **new possibilities** in the construction of digital biographical narratives. Our work explores:

- The application of narrative theory to large multimodal lifelog collections;
- The development of models & techniques which support coherent, meaningful narrative generation from lifelogs.

SENSECAM & AUGMENTATION WITH OTHER DATA SOURCES



WHY AUGMENT SENSECAM?

- Provides **context** to understand & relate SenseCam media
- Provides an **alternative perspective** on the experience
- Provides additional media to **support narration**
- To **recover from gaps** in SenseCam recordings

(CONDUCTED A DIARY STUDY WITH FIVE PARTICIPANTS TO EXPLORE THIS)

STORYTELLING

WHAT IS A LIFE NARRATIVE?

A life story is about **significant themes or periods** in the life of an individual and concerns a **set of casually related events, framed from the perspective of the current self** and within the context of our larger life experiences. A personal narrative should be **coherent and meaningful** and should not only have resonance for the author but should **enable personal experiences to be shared and communicated** effectively. They should also adhere to the principles of narrative.

UTILITY OF LIFE NARRATIVES

These stories could support:

- **REMINESCENCE:** Looking back on your life, important episodes or day(s) of interest e.g. last weekend, my birthdays
- **SHARING OF EXPERIENCES:** Using a story to **retell** and communicate experiences such as a holiday to friends
- **REFLECTION:** Critical examination of past action through stories to facilitate **decision making** or **meaning making**

STORY TYPES

There are two main types of stories we can create from lifelogs:

- | | |
|---|--|
| <p>EVERYDAY STORIES
e.g. a holiday, last weekend, a night out with friends</p> <ul style="list-style-type: none"> ● About short periods, experiences & encounters ● Anecdotal ● Social sharing of experience; Reminiscence. | <p>(PARTIAL) LIFE STORIES
e.g. My relationship with X...; The time I lived in X.</p> <ul style="list-style-type: none"> ● About broad periods & meaningful themes ● Core to self and identity ● Directive, self reflection; sharing to gain intimacy |
|---|--|

INITIAL INVESTIGATIONS

SUPPORTING CURRENT PRACTICE

Interviews conducted with a range of different individuals to understand their current use of journaling, diary keeping and storytelling within a range of domains and use cases, e.g:

- **SCRAPBOOKING:** The hobbyist creation of albums containing photo based stories of past experiences.
- **FAMILY:** The collection, display and management of mementos within the home.
- **THERAPUTIC:** The use of journaling as a tool for personal reflection and mediated storytelling in therapeutic contexts.



EXPLORING SENSECAM NARRATIVES THROUGH CARD SORTING

Nine participants engaged in a card sorting activity designed to explore the practices of narrative composition. Each was provided with up to 150 SenseCam images and a range of relevant digital content including themes (people, places, objects, emotions, etc.), emails, web pages, photos, etc. They then iteratively reduced this content into storyform.



TIME CONSUMING:

Review and reduction took a significant amount of time (30-45 min.) This reinforces the need for automated narrative creation.

REFLECTION & REMINESCENCE:

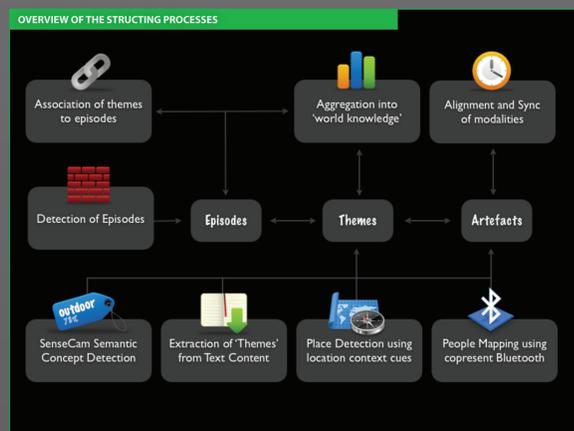
The task was seen to empower both of these, with users often stepping out of the task to elaborate on details of an artifact or to narrate the aspect of the experience embodied by the artifact.

CORE AND ANECDOTAL ELEMENTS

Often elements which expressed peripheral/anecdotal encounters (a non-cardinal unit of the plot) were preserved e.g. a humorous aside, an unusual encounter. However, by retaining them, the narrative became more personal, exemplifying the individual's unique experience and further *catalyses* the plot.

NARRATIVE CONSTRUCTION AND GENERATION

STRUCTURING FOR STORYTELLING

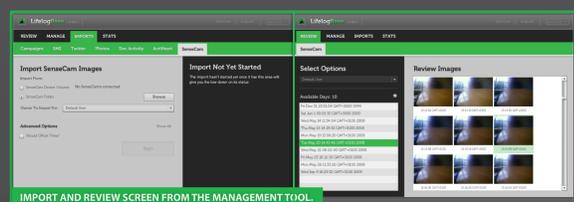


The rich multimodal data contained in the augmented lifelog must be **structured and aligned to support storytelling**. The collection is organised into three levels:

ARTEFACT: The artefacts (SenseCam, SMS, tweets, photos, documents, etc.) must be **imported** and the modalities **temporally aligned**.

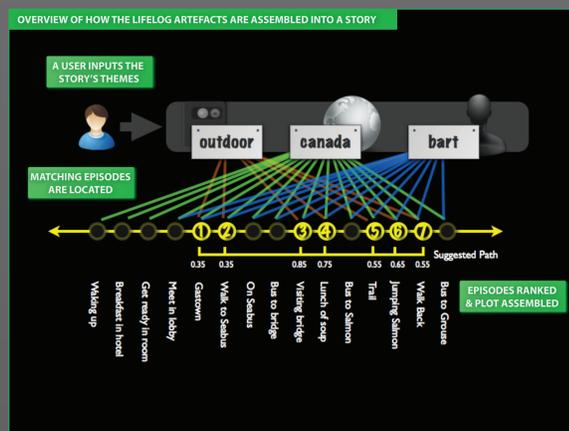
THEMATIC: Thematic processing is applied to extract salient 'themes' for each of the artefacts. This also yields **world knowledge for the themes** and how important they are in the landscape of the collection owner's life. Information on frequency of encounters, temporal patterns, etc is extracted to help **support the reasoning required to build a narrative**.

EPISODE: After processing, episodes (or events) are extracted for each of the modalities and aligned and organised sensibly.



IMPORT AND REVIEW SCREEN FROM THE MANAGEMENT TOOL.

REPRESENTING THE STORY



In representing the story automatically, a plan based reasoning process is performed through which the plot is identified using 'themes' as its fundamental components.

IDENTIFYING RELEVANT THEMES: Episodes & artefacts are **annotated with people, places, actions**, and other relevant terms. To generate a story, a user will **select a set of themes** relevant to their story and perhaps a period of interest.

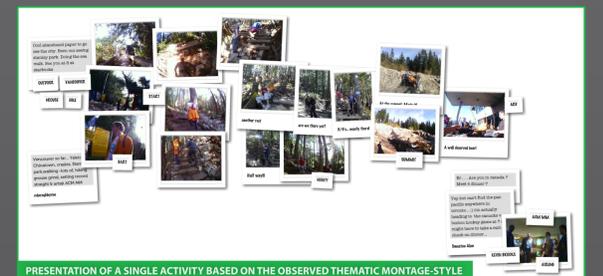
EPISODE SELECTION: With the themes identified, the algorithms will attempt to reconstruct a complete set of episodes which achieve the goals of the stories. Relevant episodes will be **selected, filtered and ranked** for importance.

ARTEFACT SELECTION: Artefacts are chosen from each episode, depending on their relevance to the story being communicated, their fluency, their quality and the level of exposition required.

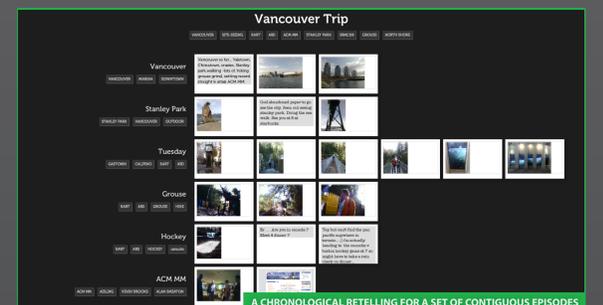
COHERENCY CHECKING: The module attempts to ensure the plot's **coverage of and coherence to the themes** of the story and to **minimise redundancy and repetition** within the selected episodes and artefacts. Coherence is key to the completeness and intelligibility of the story.

PRESENTATION

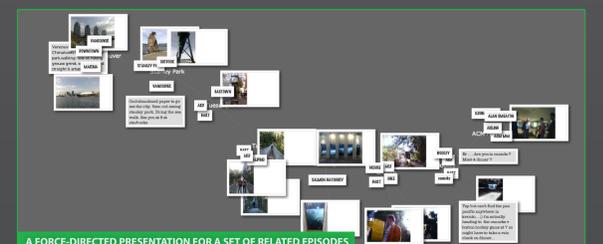
Using the output of the representational processes, the story will be presented in an **appropriate, aesthetically pleasing** manner. It will provide some **agency** to the audience over the plot through interaction. The end form of the presentation will be informed by our prior investigations and by prior work in digital narratives. The primary form will be a **thematic montage or collage based layout** illustrated below. This was found to be the preferred layout in previous studies. By providing additional control over the **presentation's style, formatting, layout**, the author can customise the presentation to the intended meaning.



PRESENTATION OF A SINGLE ACTIVITY BASED ON THE OBSERVED THEMATIC MONTAGE-STYLE



A CHRONOLOGICAL RETELLING FOR A SET OF CONTIGUOUS EPISODES



A FORCE-DIRECTED PRESENTATION FOR A SET OF RELATED EPISODES