Thememory: Experiencing Thematic Photos in Daily Practice

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Figure 1. Interaction with the *Thememory*. (a) The synthesized program theme by utilizing a user's photos. (b) A photo is hovered. (c) Some photos related to the selected one are popped up.

I. Introduction

Thanks to the advanced digital technologies, people can take pictures everyday to record their lives. However, many people almost have no time to browse these tremendous amount of photos and no good way to revisit the treasured photos . Though many methods can display the photos, people still need to allocate a specific timeslot to browse them [1]. To address this problem, a novel design concept, *Thememory*, is developed to utilize users' photos to synthesize program themes, so that the photos will become a part of users' working space and evoke their valuable memories while using their computers. As a user-centric design process, we first recruited 10 professional designers to design program themes according to our described concept, which were further ranked by 31 recruited users. The top ranked templates were implemented according to the extracted design guidelines through the ranked results.

II. Implementation

Figure 2 shows the overview of the system architecture. The *Photo Filtering* detects the duplicated photos, the *ROI Detection* detects high color contrast parts and faces in the photos, and *Metadata Extraction* retrieves the semantic information, including face containing information, timestamp, file name, and folder name. The retrieved information will be used in the photo selection and theme interaction. The selection criteria are based on the detected ROIs' timestamp, face information, and showing frequency. First, the ROIs in the synthesized program theme should be diversified as possible, so the ROIs are chosen evenly distributed on the timeline, and the stratified sampling is used. The ROIs are first sorted according to the captured time and divided into arbitrary number of buckets, which is decided by the number of ROIs required to synthesize the given program template.

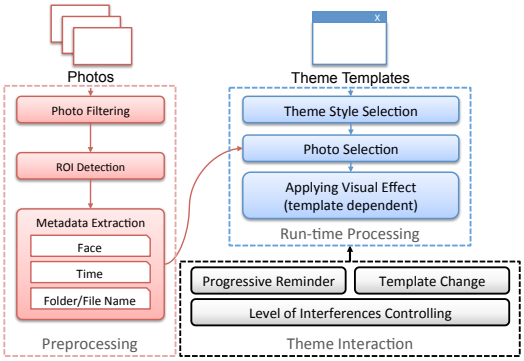

Figure 2. The overview of the system architecture.

Then, for each ROI in the bucket, we calculate its weighted score according to the ROI's showing frequency to let each ROI have the equal chance to show up.

III. Results and Conclusion

We evaluated users' preferences among *Thememory*, traditional wallpaper and dynamic wallpaper with 10 recruited users. Four different designed templates were tested. We asked the testers to bring more than 500 personal photos, which should at least cross more than 1 year. To eliminate the order effect, we confounded the experience sequence. After finishing the test, the result was measured through five-point Likert Scale by the aspects: *willingness to use*, *fragmented time utilization*, *remind story*, *non-interferences*, and *personalization*. The results show that the scores of *Thememory* are higher than the other two applications in *Willing to use*, *Fragmented time utilization*, *Remind story*, and *Personalization*. Hence, we can conclude that *Thememory* is preferred by the users comparing to the traditional wallpaper and dynamic wallpaper applications preliminarily.

Acknowledgment

This research was supported in part by the National Science Council of Taiwan under grant NSC100-2628-E-002-036-MY3 and also the Excellent Research Projects of the National Taiwan University under grant NTU102R7725.

References

[1] C. Rother, L. Bordeaux, Y. Hamadi, and A. Blake, "AutoCollage," *ACM TOG*, vol. 25, no. 3, pp. 847–852, 2006.