## Thesis Abstract

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### Thesis Title
"Between Similitude and Dissimilitude": Supporting Family Reminiscence with Non-Photorealistic Visualizations of Past Places

### Thesis Summary

This design research proposes the concept of supporting an enjoyable family reunion interaction experience by facilitating reminiscence and intergenerational storytelling with the use of artistic images of past places as memory cues. The images are created through virtual reconstruction of audiences’ past neighbourhoods, modelled based on historic aerial survey photographs and rendered with non-photorealistic visual expression inspired by Chinese ink wash painting. The concept is designed to assist reminiscence for Taiwanese families who have little access to relevant historic materials, abbreviate the visual uncertainties resulted from lack of visual references, and engage recall of past experiences. User studies have demonstrated that the images generated from the proposed visualization concept are effective in engaging reminiscence, facilitating storytelling, and creating pleasant interaction experience for participants in family reunion settings.
Reminiscence is the mental process of recalling past experiences and allows one to rediscover personal narratives that can be passed from one generation to another. In the industrialized and urbanized societies where face-to-face contacts between family members are infrequent, sharing personal stories becomes an important activity to support the development of empathy and the strengthening of family relationship and identity. Current researches in the area of assisted reminiscence generally focus on utilizing existing materials, such as historic media contents, to evoke memory recall. However, materials relevant to one’s experiences, may not necessarily exist for some people to engage in reminiscence.

This research explores the concept of supporting reminiscence for Taiwanese family reunions with visuals of virtually reconstructed past places. Researches have suggested that places play important roles in our episodic memories as the fundamental context of perceived experiences, and representations of places may evoke the recall these memories. However, places can change or disappear, and without adequate historic references, images of reconstructed past places may present uncertainties and inaccuracies. In this research, we propose a visualization process, STREMIS, which utilizes historic aerial survey photographs as main source of reference for reconstruction, and non-photorealistic rendering in Chinese ink wash painting style as the visual expression for abbreviation of uncertainties. These images provide visual hints for viewers to revisit their past neighbourhoods and rediscover forgotten stories.

The concept of STREMIS visualization has been proven through user studies using methods of photo elicitation, participatory observation, and interview with Taiwanese families at home reunion settings. The findings demonstrate that the visualizations can evoke sharing of personal stories and description about the past, and support engaging intergenerational communications among family members. The family interaction experience with the support of these visualizations has been reported as pleasant. The outcomes of this design research provide glimpse of the potentials in creating visualizations based on historic topographic data to support memory recall and storytelling. The research makes contribution in assisting family reminiscence for groups who previously have little access to relevant materials, and may provide reference for future content designers in considering the roles of place, memory, and artistic expression to engage audience’s interactive experience.