

Social Landscapes: Visual Interface to Improve Awareness in Human Relationships on Social Networking Sites

Yuya Nomata¹, Junichi Hoshino²

¹ Systems and Information Engineering, University of Tsukuba,
1-1-1 Tennodai, Tsukuba, Ibaraki, Japan
nomata@graphic.esys.tsukuba.ac.jp

² Systems and Information Engineering, University of Tsukuba,
1-1-1 Tennodai, Tsukuba, Ibaraki, Japan
jhoshino@esys.tsukuba.ac.jp

Abstract. This paper proposes Social Landscapes, a visual interface which supports exploring by visually displaying histories of user and interrelations between users in a social networking site. Social Landscapes visualizes the activities of each user through diary postings and the access status to online services, and the number of comments to the diary as landscape scenery. We describe a case study that did not emphasize the analysis of the total social network structure or for user search, but rather emphasized a visualized interface for improving the user's recognition of other users and friends in SNS.

Keywords: Information Visualization, Graphical Interface, Social Networking Services (SNS)

1 Introduction

Recently, Social Networking Sites (SNS) have been spreading rapidly. SNS are online environments where people create their own profiles for the purpose of connecting with their friends or other users they meet through the site. The main feature of such sites is the expansion of the number of your friends and acquaintances [1]. SNS-registered user cans deepen or build up relationships with existing friends or with friends of friends or unknown users in SNS through varies communications, such as disclosing diaries and giving comments on other users' diaries, and exchanging messages.

This paper proposes Social Landscapes, a visual interface which supports exploring by visually displaying histories of users' activities and interrelations between users in a social networking site. Social Landscapes visualizes the activities of each user through diary postings and the access status to online services, and the number of comments to the diary as landscape scenery.

2 Related Works

Heer et al. proposes Vizster [2] as an environment that can discover and analyze the social network of the end user. They produced a graph showing the network of relationships that exists between friends and acquaintances on SNS and reinforced functions such as the search function. Visualization of social networks was performed even before computers were used, and many examples exist [3]. Many of these social networks were visualized as graph networks using nodes and passes and were mainly used to analyze network structures. We did not concentrate on the visualization of the structure and analysis of networks with our design, but rather we focused using the visual design to improve the awareness of the activities of friends centered on the user.

There have been many previous studies done on the visualization history of user activities on online communities. Xiong et al. developed PeopleGarden [4] that depicts the characteristics of each user in the online community using flower metaphors to visualize the records of the articles and the replies submitted by each user. Furthermore, Viégas et al. developed Newsgroup Crowds and AuthorLines [5], a visualizing system that visualizes user activities on a Usenet newsgroup. All of the systems that have been developed were mainly designed to allow analysis to be performed from the outside. Opposed to using visual systems for analysis, Viégas et al. performed user-oriented visualization focused on inner reflections to heighten personal self-realization in PostHistory and Social Network Fragments, which are visualization systems for e-mail [6].

Our objective in Social Landscapes is to convey indications of the SNS activities of our friends and to encourage inner reflection.

3 Social Landscapes; Design and Implementation

The purpose for creating a visual design in Social Landscapes [Fig. 1] is not to analyze relationships or the total structure of an SNS but to improve self-realization regarding the user's friends and acquaintances. Therefore, we are not interested in presenting a comprehensive network display of the SNS as a whole.

The visualization utilizes a 3D presentation of the data, using two spatial dimensions for standard graph layouts and the third dimension as a quantitative timeline. Each user is visualized as a pillar called a Pillar Shaped Timeline.

3.1 Visualizing Each User Using a Pillar Shaped Timeline

Social Landscapes will display the number of postings in diaries by each friend and their comments using a Pillar Shaped Timeline (hereinafter "PST") object [Fig.2]. A PST object is a method for visualizing an event during a certain period and summarizing quantitative indexes associated with the event [7]. The size of the circle de-

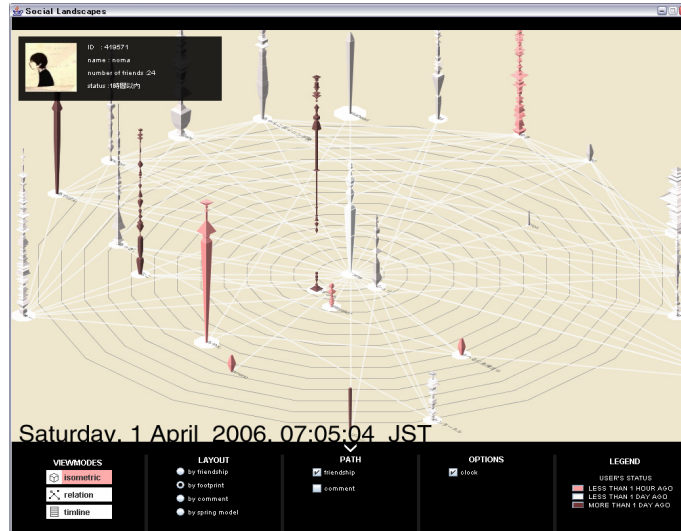


Fig. 1. A Screen Shot of Social Landscapes

picted on the base of each area shows the number of friends the user has. In addition, the names of each user will be displayed on the base area like a shadow of the pillar.

The access status of each user is reflected by the color of each PST object based on the time that has elapsed since the last access. There are three levels of color for each user based on the time that has elapsed: 1) A bright color indicates that the last access occurred within the past hour. 2) A normal color indicates that the last access occurred during the past day. 3) A darker color indicates that the last access was over two days ago.

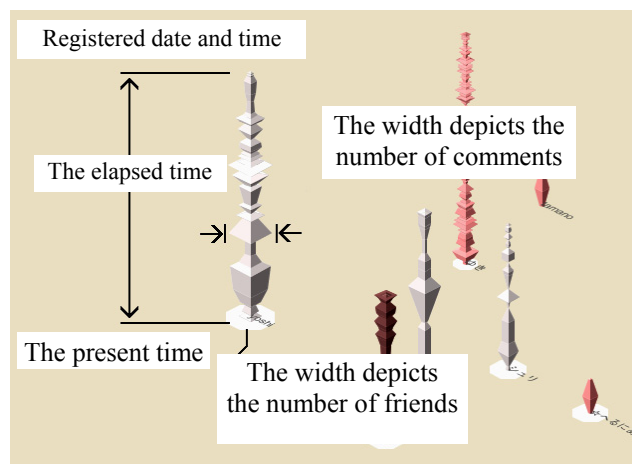


Fig. 2. Pillar Shaped Timeline

3.2 Implementation

To gain feedback from users on the effects of using Social Landscapes, we implemented a system using Java language and an hsqldb database. We used mixi[8], which is the largest SNS in Japan, as the data source when implementing the system.

By default, the users displayed immediately after start up will only be the actual user, the user's friends who are logged in. The user can select an optional object and display the user's friends and can gradually expand the displayed network if they wish to do so.

4 Conclusion

In this paper, we describe a case study that did not emphasize the analysis of the total social network structure or for user search, but rather emphasized a visualized interface for improving the user's recognition of other users and friends in SNS.

In the proposed interface, the users were able to use it passively. As a result, the users were able to gradually connect with a number of users through the system and it was able to assist in promoting relationships. By displaying the change in access status and diary postings of friends in SNS, this assisted the users to remember the other users, which will hopefully lead to further communication.

References

1. Donath, J., Boyd, D.: Public displays of connection, In *BT Technology Journal* Vol. 22, No. 4. (2004) 71-82
2. Heer, J. and Boyd, D.: *Vizster: Visualizing Online Social Networks*. IEEE Symposium on Information Visualization(InfoViz), (2005)
3. Freeman, L.: *Visualizing Social Networks*, Journal of Social Structure, Vol.1 No.1 (2000)
4. Xiong, R. and Donath, J. *PeopleGarden: Creating Data Portraits for Users*, in Proceedings of the 12 th Annual ACM Symposium on User Interface Software and Technology, New York: ACM (1999) 37-44
5. Viégas, F. B., Smith, M. A. *Newsgroup Crowds and Authorlines: Visualizing the activity of individuals in conversational cyberspaces*. Proceedings of the 37th Hawai'i International Conference on System Sciences. Los Alamitos: IEEE Press (2004)
6. Viegas, F., Boyd, D., Nguyen, D., Potter, J., Donath, J.: *Digital Artifacts for Remembering and Storytelling: PostHistory and Social Network Fragments*. Proceedings of the Hawai'i International Conference on System Sciences (HICSS-37), Persistent Conversation Track. Big Island, HI: IEEE Computer Society. January 5 - 8, (2002)
7. Nomata, Y., Hoshino, J.: *Graphical Digital Storytelling: visualizing personal histories and relations*, ACM SIGGRAPH2005 Sketches and Applications, (2005)
8. <http://mixi.jp/>