The Role of Current Working Context in Professional Search

Maya Sappelli
TNO and Radboud University Nijmegen,
The Netherlands
m.sappelli@cs.ru.nl

Categories and Subject Descriptors

H.3.4 [**Information Storage and Retrieval**]: Systems and Software—*Performance evaluation, User profiles and alert services*; I.2.7 [**Artificial Intelligence**]: Natural Language Processing—*Text analysis, Language models*

Keywords

Context recognition, Machine learning, User models

Today's working world of knowledge workers is changing rapidly. The available information that they need to process is ever growing. In addition, the characteristics of their work are changing as people can and do their work from home. This has resulted in the need to support knowledge workers in order to prevent burnouts. The project SWELL[1] targets this by developing systems that support user's mental and physical well-being at work and at home. In the PhD project presented in this abstract we aim at maintaining well-being at work through information support.The proposed research will have two goals:

The first goal is to optimize the user model, which should capture what the user wants and needs in terms of information support. The model can be used to determine which information is relevant for the user and his current activities. This should help filter information (e.g. persons, e-mails, documents) that are relevant to the user's current work activity without losing relevant or important information. We will mainly use textual data to describe the user, but aim to mix this with other relevant data such as social relations. One challenge will be to use data from different (textual) sources with various characteristics, together with non-textual data to filter the information. This has proven not to be straightforward [2]. Our aims are to develop a user model that (a) describes the user well, (b) is intuitively recognizable by the user, and (c) can be used to enhance existing IR or classification techniques. It will most likely consist of several partial identities that correspond to the contexts the user works in. Additionally, we aim to seperate the internal view (how the user describes himself) from the external view (how the user is described by his colleagues). Understanding the differences between the two may help to define the user model. Initial work in which users have assessed their personal user model shows the limitations of current methods [3].

The second goal is to evaluate the user model in the context of tools that assist knowledge workers in managing their information flow. We aim to do this eventually in a small-scale field study with a complete information support application. In the mean time we will compare various types of user models in their performance on the same task. We will mainly look at their performance on search tasks [4] and email classification tasks (i.e. categorization [2], importance of the message, relevance of the message to the context). It is interesting to look at both types of tasks, since they both have different characteristics and may need different parts of the user model. We will focus on using various term extraction techniques and temporal aspects, such as changes in interests over time.

In recent research [1] we have collected a dataset of user activities during typical knowledge worker's tasks. We plan to use these data for a series of experiments in which we aim at improving professional search by taking the searcher's current context into account. In the doctoral consortium, I hope to get advice on how to set-up experiments with this data collection.

[1] http://www.swell-project.net

SIGIR 2013, Dublin, Ireland
ACM 978-1-4503-2034-4/13/07.

Acknowledgements

This publication was supported by the Dutch national program COMMIT (project P7 SWELL).

1. REFERENCES

[1] S. Koldijk, M. Sappelli, M. Neerincx, and W. Kraaij. Unobtrusive monitoring of knowledge workers for stress self-regulation. In *Proceedings of the 21th International Conference on User Modeling, Adaptation and Personalization*, 2013.

[2] M. Sappelli, S. Verberne, and W. Kraaij. Using file system content to organize e-mail. In *Proceedings of the fourth symposium on Information interaction in context*, 2012.

[3] S. Verberne, M. Sappelli, and W. Kraaij. Term extraction for user profiling: evaluation by the user. In *Proceedings of the 21th International Conference on User Modeling, Adaptation and Personalization*, 2013.

[4] S. Verberne, M. Sappelli, D. Ransgaard Sørensen, and W. Kraaij. Personalization in professional academic search. In *Workshop on Integrating IR technologies for Professional Search*, 2013.