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On the Predictability of Talk Attendance at Academic Conferences

(Extended Abstract*)

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1 Introduction

Academic conferences facilitate scientific exchange, collaboration and innovation, e. g., fostered by social contacts and interesting talks. A major task for conference attendees is the selection of talks relevant to their research. Conference guidance systems such as Conference Navigator [10] and CONFERATOR [2, 3], support this with the possibility of creating a personalized schedule. Picking talks manually, however, may become complex due to the large amount of available talks at a conference. In such contexts, recommendation components of conference guidance systems can support their users by presenting suggestions of talks which the system determined as most interesting for the respective user. Such recommendations influence the user's decision e. g., due to recommended talks which were otherwise not considered.

In this paper, we focus on the predictability of real talk attendances, i. e., we try to find models imitating the actual decision process without recommendation influence. We study and discuss the predictability of such talk attendances using real-world face-to-face contact data and user interest models extracted from the users' previous publications. Specifically, for our evaluation we use real-world talk attendance data which was collected using the CONFERATOR system that applies RFID technology developed by the Sociopatterns consortium. Given such RFID data and collected content information of scientific papers, we derive a set of social interaction networks [1]. Based on these, we investigate the potential of social contact information and content-similarity for predicting real-world talk attendance decisions. In particular, we analyze the potential of combining different information sources for improving the overall prediction quality. We find that contact and similarity networks achieve comparable results, and that combining these networks helps to a limited extent to improve the prediction quality.

* This extended abstract summarizes the paper [8]: Scholz, C., Illig, J., Atzmueller, M., Stumme, G.: On the Predictability of Talk Attendance at Academic Conferences. In: Proc. Hypertext. ACM Press, New York, NY, USA (2014). An extended version can be found in [9].
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2 Experiments and Results

For capturing social interaction networks of face-to-face proximity, participants of the 22^{nd} ACM Conference on Hypertext and Hypermedia 2011 (HT 2011) were offered to wear active RFID tags; these detect other active RFID tags within a range of up to 1.5 meters. Table 1 provides a summary on the characteristics of the collected dataset, with diameter (d), the average aggregated contact-duration (AACD) and the average path length (APL). For more details, cf. [5–7]. For analysis, we focused on the 14 parallel talks at HT 2011; we observed 359 visited talks from 53 conference participants. We also considered the content of all papers. For each conference participant, we further crawled all papers listed in DBLP since 2006, for a total of 707 papers.

	HT 2011
$\|V\|$	68
$\|E\|$	698
Avg.Deg.(G)	20.53
APL (G)	1.76
d (G)	4
AACD	529

Table 1. Collected dataset at HT 2011.

In our experiments, we studied the influence of face-to-face contacts and user interests on the talk attendance. We showed, that the probability of two participants attending the same talk is nearly random, if there exists no contact before that talk; conversely, that probability is significantly increased if there exists a contact in the break before the talk. We also analyzed the influence of user interests based on the contents of the crawled papers: Prediction based on user-interest alone achieves better results than prediction based solely on face-to-face contact data. Furthermore, we showed that a combination of different networks helps to further improve the prediction accuracy. Also, the combination of all information belonging to one session, i. e., merging the presenter nodes, significantly improves prediction accuracy. For future work, we aim to integrate and exploit information from further social interaction networks, cf. [1] and to consider description-oriented approaches, e. g., [4], for further improving the predictions.

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