

Conferator – A Ubiquitous System for Enhancing Social Networking at Conferences

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1 Introduction

Conferator [3] is a social and ubiquitous conference guidance system, for enhancing social interactions at conferences based on the Ubicon software platform [1]. Conferator aims at supporting conference participants during conference planning, attendance and their post-conference activities. The system applies active RFID proximity tags developed by the Sociopatterns collaboration (<http://sociopatterns.org/>). In particular, these tags allow the collection of human face-to-face proximity and the localization of participants at room level. This enables the management of online social and face-to-face contacts during the conference and to support social networking.

2 Overview

At its core, Conferator comprises two key functionalities: First, Conferator helps to manage organizational information like the conference schedule. It contains information about talks, i. e., the authors, time and place of the talk. The talks are usually assigned to sessions, which are assigned to tracks. Second, Conferator provides information about personal social contacts using context sensitive information, e.g., the location of other conference participants or the own contact history. The users can browse the list of participants to search for acquaintances or friends. The corresponding *user profiles* contain additional information, cf. Figure 1.

The screenshot displays a user profile for Martin Atzmüller. At the top, there are navigation tabs: Schedule, Overview, Map, Contacts, and People. Below the tabs is a header area with the user's name 'Martin Atzmüller' and a small profile picture. The main content area is divided into two columns under the heading 'Recent BibSonomy Activities'. The left column lists 'Bookmarks' and the right column lists 'Publications'. Each entry includes a date and a brief description of the activity.

Bookmarks	Publications
11.10.2012, 22:20 sdcf - Sensor Data Collection Framework for Android	11.10.2012, 17:47 Unravelling the complexity of human mobility by querying and mining massive trajectory data
10.09.2012, 19:02 Ubicon - Connecting Ubiquitous and Social Environments	15.07.2012, 16:22 On the Predictability of Human Contacts: Influence Factors and the Strength of Stronger Ties
09.04.2012, 20:29 R subgroup package - Subgroup Discovery and Analysis	19.06.2012, 22:14 Mining Social Media: Key Players, Sentiments, and Communities

Fig. 1. An exemplary Conferator user profile showing context information and latest posts of a user, see [2].

Combining the conference schedule with localization information can deliver interesting information, e. g., “Who visited which talk?” or “Which talks were most popular during the given event?”

The Conferator application is available on different platforms: A web frontend¹ enables access on various platform, e.g., web-based or mobile systems. Furthermore, an Android application is provided on Google Play², see Figure 2. Conferator offers several privacy settings in order to enable privacy protection, e. g., for sharing locations or contact information.

Conferator has successfully been applied at conferences organized by special interest groups of the German Computer Science Society (GI) (LWA 2010³ [4], 2011⁴ and 2012⁵), at the ACM Hypertext 2011⁶ conference [7], and at INFORMATIK 2013⁷. In addition to applying the collected data, e.g., for recommendations in the running system, the combination of ubiquitous and social computing allows for interesting analyses in order to investigate the behavior of social groups. Based on this, advanced methods for data mining and knowledge processing can then be developed.

Conferator employs active RFID tags for localizing the members and for monitoring their social contacts. These so-called *proximity tags* have been developed by the SocioPatterns collaboration⁸ and are able to detect face-to-face proximity of individuals wearing them. The face-to-face proximity of two persons usually implies that they are engaged in a conversation.

The proximity tags send out two types of radio signals: Proximity sensing signals and tracking signals. Proximity sensing signals are emitted at a low

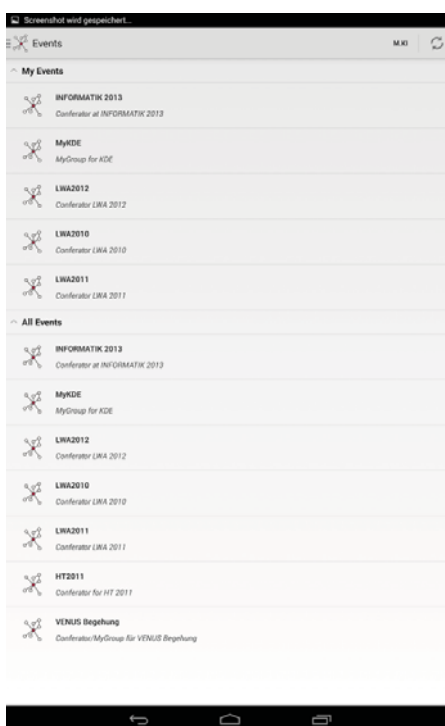


Fig. 2. Screenshot of the Conferator App depicting the available events.

¹<http://www.conferator.org>

²<https://play.google.com/store/apps/details?id=conferator.app>

³<http://www.kde.cs.uni-kassel.de/conf/lwa10/>

⁴<http://lwa2011.dke-research.de/>

⁵<http://lwa2012.cs.tu-dortmund.de>

⁶<http://ht2011.org/>

⁷<http://www.informatik2013.de/>

⁸<http://sociopatterns.org/>

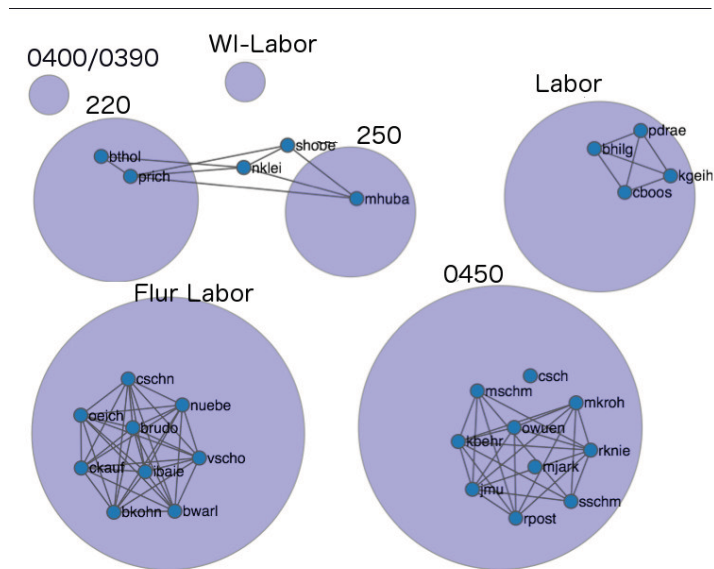


Fig. 3. Map view of the position for the participants at room-level basis, cf., [2] for more details. Each outer circle represents a room and each inner circle represents a participant. A link between two participants denotes, that the concerning participants have an ongoing face-to-face contact.

power level and are used for the detection of face-to-face proximity. For localization purposes the proximity tags send out tracking signals at different power levels, that are received by RFID readers at fixed positions in the target area (typically a room in a building). As in [12], the dataprocessor identifies a face-to-face contact when the corresponding proximity tags detect each other for more than 20 seconds. A contact ends, when both proximity tags do not detect each other for more than 60 seconds.

We apply the proximity tags for the localization of participants [10, 11] and for detecting their social contacts [6, 7, 9]. The map view (cf. Figure 3) enables an easy localization of the group members. Additionally, Conferator provides profile information including links to (external) social software, e. g., BibSonomy, Twitter, Facebook, or XING. Specifically, the users' latest BibSonomy⁹ or Twitter¹⁰ posts point to current research topics, work, or other interesting activities. This information is included in the elaborate user profiles which provide further detailed information about position, interests, and skills of an individual. Figure 1 is showing an example profile page.

⁹<http://www.bibsonomy.org>

¹⁰<http://www.twitter.com>

3 Outlook

As outlined above, Conferator enables powerful techniques and functionality for supporting social networking, interactions and management of information at conferences. Future work concerns the development of the application considering further issues of pervasive computing [8], for example, in connection with leveraging further information from sensor data and collective mobile sensing [5]. Here, the integration of other sensing technologies (e. g., Bluetooth low energy) and the integrated processing of additional context information (e. g., about movement patterns) are interesting options for future work.

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