

Exploitation of Usage and Attention Metadata

Hans-Christian Schmitz, Martin Wolpers

Fraunhofer FIT.ICON
Schloss Birlinghoven
53754 Sankt Augustin
hans-christian.schmitz@fit.fraunhofer.de
martin.wolpers@fit.fraunhofer.de

Information systems provide a continuously growing amount of information in today's working and living environments. As a consequence, users in diverse contexts need support in information acquisition and use. They are reliant on recommendations of relevant information (captured in data objects of some kind), useful and usable tools and potential collaboration partners. Today, such support is rather limited as it does not sufficiently take into account the user's current interests, activities, tasks and goals. A promising way of dealing with this challenge is provided by approaches that determine adequacy of information provision on the basis of the user's actual behaviour and attention as recorded in server log files and on the individual user's computers. Frameworks and data formats – like the Contextualized Attention Metadata (CAM) format – have been developed for capturing, storing, exchanging and analyzing metadata on usage and attention. However, the effective exploitation of such metadata is still a desideratum that lacks scientific discussion in computer science. Fostering this discussion, the EUAM workshop will contribute to the advancement of the state of the art in capturing and exploiting observations with the help of computers.

Usage and attention metadata describe observations about the computer-related activities of individual users or groups. By extending the observation data with additional data on the observed users (referring to their professions, ages, sexes, etc.) and on the data objects being used (their data types, semantics, collaboratively created tag sets, etc.), encompassing information becomes available that allows further and much more precise exploration than is possible in today's environments. Enriched metadata sets describe relations between users, their actions and involved data objects and therefore provide a deeper insight into the processes that users carry out in order to achieve goals. For example, such sets enable user-profiles that answer questions like “What did a particular user do (under already specified contextual conditions) to achieve a certain goal?” and “Which kinds of data objects did she use in which contexts?” Likewise, object-profiles can be generated that answer questions like “By whom has a particular object been used?” and “What has been done with the object in which contexts?” User and object profiles give rise to diverse classifications: “Which users performed certain actions with an over-average frequency?”, “Which users attended to objects with certain semantic properties?”, “Which objects have been in the focus of a certain user group?” Most naturally, usage and attention metadata form dynamic representations of computer-usage that have temporal dimensions and reflect the evolutions of usages and attentions.

Consequently, sequences of observations describe traces and thereby dynamic contexts of computer usage and information processing.

While research continues in the further evaluation and interpretation of usage and attention metadata, the focus moves from the collection and interpretation of highly specialized and fine-grained observations (e.g. web-browser data, key stroke recording, eye tracking data), to larger areas addressing wider scenarios. In particular, three broad research questions are currently under discussion: Firstly, how can we integrate single metadata instances and identify sequences of atomic actions as connected higher order actions? How can these action sequences be assigned to user tasks and even goals? Secondly, what are the most useful ways of relating data objects according to their actual usages? Can semantic relations be derived from usage relations? Thirdly, what are the best ways of giving reports on computer usage to the user in order to support her in reflecting her activities and improving her performance?

The objective of the EUAM 09 workshop is to discuss new ways of exploiting usage and attention metadata in different application areas like technology enhanced learning, recommender systems, and collaborative systems. The papers presented in this workshop address these issues and the above mentioned research questions.

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