

List of Publications

Contextualization, User Modeling and Personalization in the Social Web
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In the last years I published the building blocks of this thesis in several workshops, conferences, journals and book chapters relevant to the research area of information systems. Here, I list the most important publications that directly contribute to my thesis.

Basic principles and models that build the basis for our algorithms are best described in the following publications.

- The Benefit of additional Semantics in Folksonomy Systems. By F. Abel. In *Proceedings of the 2nd PhD workshop on Information and Knowledge Management (PIKM '08)*, ACM, 2008 [1].
- Social Semantic Web at work: annotating and grouping social media content. By F. Abel, N. Henze, and D. Krause. In S. H. Jose Cordeiro and J. Filipe, editors, *Web Information Systems and Technologies, Lecture Notes in Business Information Processing*, volume 18, Springer, 2009 [22].
- Semantic enhancement of social tagging systems. By F. Abel, N. Henze, D. Krause, and M. Kriesell. In Vladan Devedzic, Dragan Gašević, editors, *Annals of Information Systems – Web 2.0 & Semantic Web*, volume 6, 2009 [25].
- Multi-faceted Tagging in TagMe!. By F. Abel, R. Kawase, D. Krause, and P. Siehndel. In *8th International Semantic Web Conference (ISWC '09)*, Springer, 2009 [32].

We implemented these principles and approaches to user and context modeling in different systems. We developed GroupMe!, a social bookmarking system that enables users to visually organize their bookmarks in groups, and TagMe!, a tagging and exploration front-end for Flickr images. Further, we implemented the so-called Grapple User Modeling Framework (GUMF), which allows for user modeling across system boundaries, and the Mypes service, which is part of GUMF and provides functionality for aggregating and aligning user data distributed across the Social Web. These *tools* have, for example, been presented in the subsequent research articles.

- GroupMe! – Where Semantic Web meets Web 2.0. By F. Abel, M. Frank, N. Henze, D. Krause, D. Plappert, and P. Siehndel. In *6th International Semantic Web Conference (ISWC '07)*, Springer, 2007 [8].
- A Novel Approach to Social Tagging: GroupMe!. By F. Abel, N. Henze, and D. Krause. In *4th International Conference on Web Information Systems and Technologies (WEBIST)*, INSTICC Press, 2008 [19].
- GroupMe! - Where Information meets. By F. Abel, N. Henze, and D. Krause. In *Proceedings of the 17th International Conference on World Wide Web (WWW '08)*, ACM, 2008 [18].
- GroupMe! - Combining ideas of Wikis, Social Bookmarking, and Blogging. By F. Abel, M. Frank, N. Henze, D. Krause, and P. Siehndel. In *2nd International Conference on Weblogs and Social Media (ICWSM 2008)*, AAAI Press, 2008 [9].
- The Art of multi-faceted Tagging – interweaving spatial annotations, categories, meaningful URIs and tags. By F. Abel, R. Kawase, D. Krause, P. Siehndel, and N. Ullmann. In *6th International Conference on Web Information Systems and Technologies (WEBIST '10)*, INSTICC Press, 2010 [33].
- Mashing up user data in the Grapple User Modeling Framework. By F. Abel, D. Heckmann, E. Herder, J. Hidders, G.-J. Houben, D. Krause, E. Leonardi, and K. van der Sluijs. In *Workshop on Adaptivity and User Modeling in Interactive Systems (ABIS '09)*, 2009 [11].

The systems and tools we implemented served as playground to experiment with the algorithms, which we outline in this thesis. For example, we introduce several algorithms that exploit contextual information embedded in folksonomies and apply these algorithms for search and ranking in folksonomy systems. An overview of these algorithms and corresponding evaluations regarding *search and ranking in folksonomy systems* is given in the following papers.

- On the effect of group structures on ranking strategies in folksonomies. By F. Abel, N. Henze, D. Krause, and M. Kriesell. In R. Baeza-Yates and I. King, editors, *Weaving Services and People on the World Wide Web*, Springer, 2009 [24].
- Ranking in Folksonomy Systems: can context help? By F. Abel, N. Henze, and D. Krause. In *Proceedings of the 17th ACM Conference on Information and Knowledge Management (CIKM '08)*, ACM, 2008 [20].
- Context-aware ranking algorithms in folksonomies. By F. Abel, N. Henze, and D. Krause. In *Proceedings of the Fifth International Conference on Web Information Systems and Technologies (WEBIST '09)*, INSTICC Press, 2009 [21].

- Optimizing search and ranking in folksonomy systems by exploiting context information. By F. Abel, N. Henze, and D. Krause. *Lecture Notes in Business Information Processing*, volume 45(2), Springer, 2010 [23].
- Leveraging multi-faceted tagging to improve search in folksonomy systems. By F. Abel, R. Kawase, and D. Krause. In *Proceedings of the 21st ACM Conference on Hypertext and Hypermedia (Hypertext '10)*. ACM, 2010 [31].
- The impact of multifaceted tagging on learning tag relations and search. By F. Abel, N. Henze, R. Kawase, and D. Krause. In *Extended Semantic Web Conference (ESWC '10)*, Springer, 2010 [16].

We further apply the context and user modeling strategies in combination with our ranking algorithms to allow for personalization in Social Web systems. Therefore, we introduce and evaluate several methods that support *personalized search and recommender systems*:

- Context-based ranking in folksonomies. By F. Abel, M. Baldoni, C. Baroglio, N. Henze, D. Krause, and V. Patti. In *Proceedings of the 20th ACM Conference on Hypertext and Hypermedia (Hypertext '09)*, ACM, 2009 [3].
- Leveraging search and content exploration by exploiting context in folksonomy systems. By F. Abel, M. Baldoni, C. Baroglio, N. Henze, R. Kawase, D. Krause, and V. Patti. In *New Review of Hypermedia and Multimedia: Web Science*, Taylor & Francis, 2010 [3].
- Exploiting additional Context for Graph-based Tag Recommendations in Folksonomy Systems. By F. Abel, N. Henze, and D. Krause. In *International Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT '08)*. ACM, 2008 [17].

As the principles and tools, which we developed as part of this thesis, also increase interoperability across systems, we investigate user and context modeling strategies for *personalization across system boundaries* on the Social Web.

- Interweaving public user profiles on the web. By F. Abel, N. Henze, E. Herder, and D. Krause. In *Proceedings of 18th International Conference on User Modeling, Adaptation, and Personalization (UMAP '10)*, Springer, 2010 [14].
- Building Blocks for User Modeling with data from the Social Web. By F. Abel, N. Henze, E. Herder, G.-J. Houben, D. Krause, and E. Leonardi. In *International Workshop on Architectures and Building Blocks of Web-Based User-Adaptive Systems (WABBWUAS '10)*, CEUR, 2010 [13].
- Linkage, Aggregation, Alignment and Enrichment of public user Profiles with Mypes. By F. Abel, N. Henze, E. Herder, and D. Krause. In *International Conference on Semantic Systems (I-Semantics '10)*, ACM, 2010 [15].

- A framework for flexible user profile mashups. By F. Abel, D. Heckmann, E. Herder, J. Hidders, G.-J. Houben, D. Krause, E. Leonardi, and K. van der Sluis. In *International Workshop on Adaptation and Personalization for Web 2.0 at UMAP '09*, CEUR, 2009 [10].
- A flexible rule-based method for interlinking, integrating, and enriching user data. By E. Leonardi, F. Abel, D. Heckmann, E. Herder, J. Hidders, and G.-J. Houben. In *Proceedings of 10th International Conference on Web Engineering (ICWE '10)*, Springer, 2010 [39].

During my Ph.D. work I was also concerned with side topics and corresponding research articles that emerged from the core work on this thesis. For example, we integrated the tools and systems, which we developed in this thesis, also in other platforms to analyze their impact on social sharing of learning resources [35, 34], organizing news media [38] as well as on collaborative search [30]. We experimented with rule-based approaches for recommender systems [4, 5] and personalized search, where we exploited preferences explicitly specified by the people [29, 37]. We worked on user modeling in the Semantic Web [26] and proposed vocabularies such as the *Grapple User Profile Format* (Grapple statements) [12]. Further, we developed an access control mechanism for RDF stores (*AC4RDF*) [6] for protecting sensitive user profile data and implemented a corresponding interface that allows for the specification of access control rules [7].

In the area of user modeling and personalization on the Social Web we furthermore established three international workshops where we discussed these topics with researchers from the intelligent user interfaces, Semantic Web and user modeling & personalization communities. The success of these workshops (high attendance) further shows the importance of our research work in the field of user modeling and personalization.

- Workshop on User Data Interoperability in the Social Web (UDISW '10) [2] co-located with International Conference on Intelligent User Interfaces (IUI '10), Hong Kong, China.
- Workshop on Linking of User Profiles and Applications in the Social Semantic Web (LUPAS '10) [27] co-located with Extended Semantic Web Conference (ESWC '10), Heraklion, Greece.
- Workshop on Architectures and Building Blocks of Web-Based User-Adaptive Systems (WABBWUAS '10) [28] co-located with International Conference on User Modeling, Adaptation and Personalization (UMAP '10), Hawaii, USA.

Systems and tools we developed are available online and can be used by researchers, application developers as well as by the general public.

GroupMe! The social tagging system GroupMe! enables users to create collections of bookmarks. GroupMe! also attracted attention by industry as

it was presented at the world's largest computer exposition CeBIT 2008 in Hannover, Germany. Website: <http://groupme.org>

TagMe! The Flickr tagging and exploration front-end TagMe! introduces novel paradigms to social tagging such as “tagging of tag assignments”. Website: <http://tagme.groupme.org>

GUMF We developed the Grapple User Modeling Framework (GUMF) so that application developers can immediately benefit from the context and user modeling approaches presented in this thesis. Website: <http://gumf.groupme.org>

Mypes Interlinkage, aggregation and semantic enrichment of user data distributed across Social Web systems like Flickr, Facebook, or Delicious is offered by the Mypes service. Website: <http://mypes.groupme.org>

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