

Researcher Modeling in Personalized Digital Library

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Researchers use digital libraries to either find solutions to particular problems concerning their current research or just to keep track with the newest trends in areas of their interest. However, the amount of information in digital libraries grows exponentially. This has two serious consequences. Firstly, many interesting works are unnoticed. Secondly, researchers spend too much time reading articles that turn out low-quality, unrelated to their current research or unrelated to their other interests. These kinds of problems are nowadays solved with recommendation systems or more effectively with personalized recommendation systems.

The core of every personalized system is its user model. User model is built from user data and is used to personalize any feature of the personalized system. Model creation process and representation depend on availability of user data and requirements of personalized features [1]. They also depend on domain of user modeling. For example, user knowledge is essential in educational domain [2], but in domain of digital libraries, other characteristics of the user like interests become important. In case of digital libraries, we deal with researcher models.

We propose a researcher model that leverages various user data available in digital libraries. We implemented the model in the Annota digital library¹ other digital libraries offer more or less user and domain data.

- papers the user has stored in her library
- papers the user has authored
- user's activity on the ACM web pages of papers
- tags and folders the user has used for organizing her library
- tags and folders the user has used for navigation
- terms the user has searched for

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¹ <http://annota.fiit.stuba.sk>

Digital libraries thus contain numerous relations between papers, authors, tags, etc. A graph is suitable to reflect these relations. We propose a researcher model, which combines the existing relations in the digital library to create new relations. Figure 1 shows the overall architecture of the proposed model.

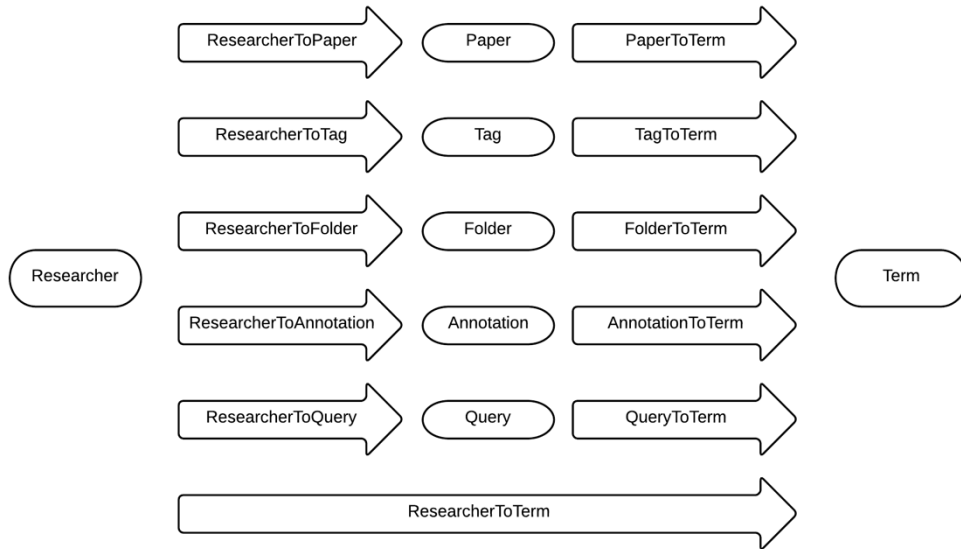


Figure 1 Researcher Model

The model comprises multiple entities and relations. The final relation is ResearcherToTerm. Its weights represent a vector of terms relevant to the researcher. The researcher model is a vector of terms from outside, but a graph inside. Therefore the components of the model are reusable and the model is extensible.

We evaluate the model by investigating how the researchers perceive their computed interests. We plan to perform the experiment using a game with purpose.

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References

- [1] Peter Brusilovsky, Eva Millán. User Models for Adaptive Hypermedia and Adaptive Educational Systems. In: *Brusilovsky, P.; Kobsa, A.; Nejdl, W. (eds.): The Adaptive Web*. Springer Berlin Heidelberg. Berlin. 3-53. 2007.
- [2] Peter Brusilovsky. Adaptive Hypermedia for Education and Training. In: *Durlach, P., Lesgold, A. (eds.): Adaptive Technologies for Training and Education*. Cambridge University Press. Cambridge. 46-68. 2012.
- [3] Ševcech, J., Bieliková, M., Burger, R., Barla, M.: Logging activity of researchers in digital library enhanced by annotations. In: *Bieliková M., Šimko, M. (Eds.): 7th Workshop on Intelligent and Knowledge oriented Technologies, (2012)*, pp. 197-200. (in Slovak)