

{tag}

{/tag}

International Journal of Computer Applications

© 2014 by IJCA Journal

Volume 108 - Number 3

Year of Publication: 2014

Authors:

Ayşe Cufoglu

10.5120/18888-0179

{bibtex}pxc3900179.bib{/bibtex}

Abstract

In Today's technology driven world user profiles are the virtual representation of each user and they include a variety of user information such as personal, interest and preference data. These profiles are the outcome of the user profiling process and they are essential to service personalization. Different methods, techniques and algorithms have been proposed in the literature for the user profiling process. This paper aims to give an overview on the user profiling and its related concepts, and discuss the pros and cons of current methods for the future service personalization. Furthermore, it also give details about the simulations which have been carried out with well known classification and clustering algorithms with real world user profile dataset. This work is based on the doctoral thesis of the author.

References

ences

- G. Araniti, P. D. Meo, A. Iera and D. Ursino (2003). Adaptive controlling the QoS of multimedia wireless applications through user profiling techniques, IEEE Journal on selected areas in communication, 21(10), pp. 1546-1556.
- T. Kuflik and P. Shoval (2000). Generation of user profiles for information filtering-research agenda, Annual International ACM SIGIR Conference on Research and Development in Information Retrieval, pp. 313-315.

- M. J. Martin-Bautista, D. H. Kraft, M. A. Vila, J. Chen and J. Cruz (2002). User profiles and fuzzy logic for web retrieval issues, *Soft Computing (Focus)*, 15(3-4), pp. 365-372.
- European Telecommunications Standards Institute (ETSI) (2005). Human Factors (HF); User Profile Management, pp. 1- 100, Available: <http://www.etsi.org/>
- S. Henczel (2004). Creating user profiles to improve information quality, *Factiva*, 28(3), p. 30.
- C. Gena (2005). Methods and techniques for the evaluation of user-adaptive systems, *The Knowledge Engineering*, 20(1), pp. 1-37.
- M. Khosrowpour (2005). Encyclopaedia of information science and technology, Electron. Book, Hershey, PA Idea Group Reference, pp. 2063-2067.
- D. Poo, B. Chng and J. M. Goh (2003). A hybrid approach for user profiling, *Annual Hawaii International Conference on System Sciences*, 4(4), pp. 1-9.
- J. Blom (2000). Personalization-a taxonomy, *Conference on Human Factors in Computing Systems*, pp. 313-314.
- I. Jorstad, D. V. Thanh and S. Dustdar (2004). Personalization of Future Mobile Services, *International Conference on Intelligence in Service Delivery Networks*.
- I. Jorstad, D. V. Thanh and S. Dustdar (2005). The personalization of mobile services, *IEEE International Conference on Wireless and Mobile Computing, Networking and Communications*, 4, pp. 59-65.
- H. Stormer (2004). Personalized websites for mobile devices using dynamic cascading style sheets, *International Conference on Advances in Mobile Multimedia*, pp. 351-360.
- E. Lillevold and J. Noll (2004). Personalization in telecom business, *European Institute for Research and Strategic Studies in Telecommunications*, Available: <http://archive.eurescom.eu>.
- R. Guarneri, A. M. Sollund, D. Marston, E. Fossbak, B. Berntsen, G. Nygreen, G. Gylterud, R. Bars and A. Kerdraon (2004). Report of state of the art in personalisation, *Common Framework*, pp. 1-59, Available: <http://www.isteperspace.org/deliverables/D5.1.pdf>
- P. S. Yu (1999). Data mining and personalization technologies, *International conference on database systems for advance applications*, pp. 6-3.
- D. Kelly and J. Teevan (2003). Implicit feedback for inferring user preference: a bibliography, *ACM Special Interest Group on Information Retrieval (SIGIR) forum*, 37(2), pp. 18-28
- D. Godoy and A. Amandi (2005). User profiling in personal information agents: a survey, *The Knowledge Engineering Review Journal*, 20(4), pp. 329-361.
- S. Steward and J. Davies (1997). User profiling techniques: a critical review, *British Computer Society, BCS-IRSG Annual Colloquium on IR Research*, pp. 1-22.
- D. Godoy and A. Amandi (2005). User profiling for web page filtering, *IEEE internet computing*, 9(4), pp. 56-64.
- E. J. Neuhold (2003). Personalization and user profiling & recommender systems, *WI/IM Information Management Proseminar*, pp. 1-25.
- H. Luo, C. Niu, R. Shen and C. Ullrich (2008). A collaborative filtering framework based on both local user similarity and global user similarity, *Springer Computer Science Machine Learning*, 72(3), pp. 231-245.
- G. Adomavicius and A. Tuzhilin (2005). Towards the next generation of recommender

systems: a survey of the state-of-the-art and possible extensions, *IEEE Transactions on Knowledge and Data Engineering*, 17(6), pp. 734-749.

- X. Su and T. M. Khoshgoftaar (2009). A survey of collaborative filtering techniques, *Advances in Artificial Intelligence*, p. p. 1-19.
- M. Khosrowpour (2006). *Encyclopaedia of ecommerce, e governments, and mobile commerce*, Electron. Book, Hershey, PA Information science Reference, pp. 118-123.
- M. R. Lopez, A. B. B. Martinez, A. Peleteiro, F. A. M. Fonte and J. C. Burguillo (2011). moreTourism: mobile recommendations for tourism, *IEEE International Conference on Consumer Electronics*, pp. 347-348.
- Y. B. Fernandez, M. L. Nores, J. J. P. Arias, J. G. Duque, M. I. M. Vicente (2011). TripFromTV+: Exploiting social networks to arrange cut-price touristic packages, *IEEE International Conference on Consumer electronics*, pp. 223-224.
- C. K. Georgiadis and S. H. Stergiopoulou (2008). Mobile commerce applications development: implementing personalized services, *International Conference on Mobile Business*, pp. 201-210.
- W. Woerndl, C. Scheuller and R. Wojtec (2007). A hybrid recommender system for context-aware recommendations of mobile applications, *IEEE International Conference on Data Engineering Workshop*, pp. 871-878.
- H. Jeon, T. Kim and J. Choi (2008). Mobile semantic search personal preference filtering, *International Conference on Networked Computing and Advanced Information Management*, pp. 531-534.
- C. Biancalana, F. Gasparatti, A. Micarelli and G. Sansonetti (2011). Social tagging for personalized location-based services, *International Workshop on Social Recommender Systems*, pp. 1- 9
- J. Park, S. J. Lee, S. J. Lee, K. Kim, B. S. Chung and Y. K. Lee (2011). Online video recommendation through tag-cloud aggregation, *IEEE Multimedia*, 18(1), pp. 78-87.
- C. A. Yeung, N. Gibbins and N. Shadbolt (2008). A study of user profile generation from folksonomies, *Workshop on Social Web and Knowledge Management*, pp. 1-8.
- K. Lakiotaki, N. F. Matsatsinis and A. Tsoukias (2011). Multicriteria user modelling in recommender systems, *IEEE Intelligence Systems*, 26 (2), pp. 64-76.
- R. V. Meteren and M. V. Someren (2000). Using content-based filtering for recommendation, *Workshop on Machine Learning in the New Information Age*, pp. 312-321.
- Y. W. Park and E. S. Lee (1998). A new generation method of a user profile for information filtering on the internet, *International Conference on Information Networking*, pp. 261-264.
- G. Specht and T. Kahabka (2000). Information filtering and personalization in databases using gaussian curves, *International Symposium on Database Engineering and Applications*, pp. 16- 24.
- W. J. Lee, K. J. Oh, C. G. Lim and H. J. Choi (2014). User profile extraction from twitter for personalized news recommendation, *International Conference on Advanced Communication Technology*, pp. 779-783.
- A. B. B. Martinez, M. R. Lopez, E. C. Mantenegro, J. C. Burguillo, F. A. M. Fonte and A. Peleteiro (2010). A hybrid content-based and item-based collaborative filtering to recommend TV programs enhanced with singular value decomposition, *Elsevier Information Sciences: an International Journal*, 180(22), pp. 4290-4311.
- Z. S. Shibeshi, S. Ndakunda, A. Terzoli and K. Brandshaw (2011). Delivering a

personalized video service using IPTV, International Conference on Advanced Communication Technology, pp. 1489-1494.

- M. Kodialam, T. V. Lakshman, S. Mukherjee and L. Wang (2011). Online scheduling of targeted advertisements for IPTV, IEEE/ACM Transactions on Networking, 19(6), pp. 1825-1834.
- T. Pessemier, T. Deryckere, K. Vanhecke and L. Martens (2008). Proposed architecture and algorithm for personalized advertising on iDTV and mobile devices, IEEE Transactions on Consumer Electronics, 54(2), pp. 709-713.
- D. Irani, S. Webb and C. Pu (2010). Study of static classification of social spam profiles in MySpace, International Conference on Weblogs and Social Media, pp. 82-89.
- W. Paireekreng and K. W. Wong (2009). Client-side mobile user profile for content management using data mining techniques, International Symposium on Natural Language Processing, pp. 96-100.
- A. Cufoglu, M. Lohi and K. Madani (2008). A comparative study of selected classification accuracy in user profiling, International Conference on Machine Learning and Applications, pp. 787-791.
- A. Cufoglu, M. Lohi and K. Madani (2008). classification accuracy performance of Nave Bayesian (NB), Bayesian Networks (BN), Lazy Learning of Bayesian Rules (LBR) and Instance- Based Learner (IB1) - comparative study, International Conference on Computer Engineering and Systems, pp. 210-215.
- A. Cufoglu, M. Lohi and K. Madani (2009). A comparative study of selected classifiers with classification accuracy in user profiling, World Congress on Computer Science and Information Engineering, pp. 708-712.
- A. Cufoglu, M. Lohi and C. Everiss (2013). Clustering Algorithms and Weighted Instance Based Learner for User Profiling, International Conference on Advances in Information Mining and Management, pp. 7-11.
- A. Cufoglu, M. Lohi and C. Everiss (2012). Weighted Instance Based Learner (WIBL) for user profiling, International Symposium on Applied Machine Intelligence and Informatics, pp. 201-205.
- B. V. Govea, J. G. G. Serna, R. P. Medellan (2011). Effects of relevant contextual features in the performance of a restaurant recommender system. In :ACM RecSys 2011: Workshop on Context Aware Recommender Systems.
- F. V. Jensen (1993). "Introduction to Bayesian network". Denmark, Hugin Expert A/S.
- M. Panda and R. M. Patra (2008). A comparative study of data mining algorithms for network intrusion detection. International Conference on Emerging Trends in Engineering and Technology, pp. 504-507.
- H. W. Ian and E. Frank (2005). "Data Mining: Practical machine learning tools and techniques", 2nd Edition, Morgan Kaufmann, San Francisco.
- L. Liu, Z. Liz and H. He (2008). The research of decision support vector machine in web information classification, International Conference on Computer Supported Cooperative Work in Design, pp. 196-200.
- K. P. Bennett and J. A. Blue (1998). Support vector machine approach to decision trees. International Conference on Neural Networks, pp. 2396-2401.
- D. W. Aha, D. Kibler and M. K. Albert (1991). Instance-based learning algorithms, Machine Learning Journal, 1(6), pp. 37-66.

- O. Gomez, E F. Morales and J. A. Gonzales (2007). Weighted instance-based learning using representative intervals, Mexican International Conference on Advances in Artificial Intelligence, pp. 420-430.
- C. G. Atkeson, A. W. Moore and S. Schaal (1997). Locally weighted learning, Artificial Intelligence, pp. 11-73.
- J. G. Clear and L. E. Trigg (1995). K*: An instance-based learner using an entropic distance measure, International Conference on Machine Learning, pp. 108-114.
- G. Demiroz and H. A. Guvenir (1996). Genetic algorithms to learn feature weights for nearest neighbour algorithm, Belgian- Dutch Conference on Machine Learning, pp. 117-126.
- I. H. Witten, E. Frank and M. A. Hall (2011). "Data mining practical machine learning tools and techniques" 3rd Edition, Morgan Kaufmann, USA pp. 472-550.
- G. Demiroz and H. A. Guvenir (1997). Classification by Voting Feature Intervals, Conference on Machine Learning, pp. 85- 92.
- B. S. Everitt, S. Landau, M. Leese, and D. Stahl, "Cluster Analysis", 5th Edition, John Wiley and Sons, Ltd. (London), 2011, pp. 73-78.
- D. S. Hochbaum and D. B. Shmoys (1985). A best possible heuristic for the k-center problem, Mathematics of Operations Research, 10(2), pp. 180-184
- A. P. Dempster, N. M. Laird and D. B. Rubin (1977). Maximum likelihood from incomplete data via the EM Algorithm, Journal of the Royal Statistical Society. Series B (Methodological), 39(1), pp. 1-38.

Index Terms

Computer Science

Information Sciences

Keywords

user profiling user profile personalization classification clustering