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## 下一代移动推荐系统

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### Towards the next generation of mobile recommender systems

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**摘要** 推荐系统的目的是通过利用用户的评价信息, 实现从过载的信息中识别出用户感兴趣的内容。移动环境下的空间数据复杂性较高, 并且用户的上下文信息更加模糊, 从而使得移动个性化推荐相比于传统领域面临更大的挑战。本文通过介绍传统推荐算法和移动环境下个性化推荐的特性, 给出了移动推荐的挑战; 在基于GPS信息的出租车线路推荐和旅游包推荐两个移动案例基础上, 提出了移动序列推荐问题及基于约束的旅游推荐问题, 并给出了相应的解决方案。

**关键词:** 推荐系统 计算广告 移动序列推荐

**Abstract:** Recommender systems aim to identify content of interest from overloaded information by exploiting the opinions of a community of users. Due to the complexity of spatial data and the unclear roles of context-aware information, developing personalized recommender systems in mobile and pervasive environments is more challenging than developing recommender systems from traditional domains. This paper introduced classic recommendation techniques and unique features in mobile recommender systems, as well as the challenges in mobile environment. Based on two cases, taxi driving route recommendation and personalized travel package recommendation, we formulated the mobile sequential recommendation (MSR) problem and constrained travel recommendation. Finally, we gave a brief solution of the mobile recommender problem respectively.

**Key words:** [recommender system](#) [computational advertising](#) [mobile sequential recommender](#)

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- [1] GE Y, XIONG H, TUZHILIN A, et al. An energy-efficient mobile recommender system[C]//Proceedings of the 16th ACM SIGKDD International Conference on Knowledge Discovery and Data mining. Washington DC: ACM, 2010: 899-908.
- [2] HOSSEINI-POZVEH M, NEMATBAKHS M, MOVAHHEDINIA N. A Multidimensional Approach for Context-aware Recommendation in Mobile Commerce [J]. International Journal of Computer Science and Information Security, 2009, 3(1): 86-91.
- [3] YANG W S, CHENG H C, DIA J B. A location-aware recommender system for mobile shopping environments[J]. Expert Systems with Applications, 2008, 34(1): 437-445.
- [4] GEDIMINAS A, ALEXANDER T. Towards the next generation of recommender systems: A survey of the state-of-the-art and possible extensions [J]. IEEE Transactions on Knowledge and Data Engineering, 2005, 17(6): 734-749.
- [5] 许海玲, 吴潇, 李晓东, 等. 互联网推荐系统比较研究[J]. 软件学报, 2009, 20(2): 350-362.

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- [6] 徐风苓, 王立才, 孟祥武. 基于移动用户上下文相似度的协同过滤推荐算法[J]. 电子与信息学报, 2011, 33(11): 2785-2789.
- [7] RESNICK P, VARIAN H R. Recommender systems [J]. Communications of the ACM, 1997, 40(3): 56-58.
- [8] MOONEY R J, ROY L. Content-based book recommending using learning for text categorization[C]//Proceedings of the SIGIR-99 Work on Recommender Systems: Algorithms and Evaluation. Berkeley, CA: ACM, 1999.
- [9] MANNING C, RAGHAVAN P, SCH TZE H. An Introduction to Information Retrieval[M]. Cambridge: Cambridge University Press, 2009.
- [10] PAZZANI M, BILLSUS D. Learning and revising user profiles: The identification of interesting web sites[J]. Machine learning, 1997, 33: 313-331.
- [11] PAZZANI M. A framework for collaborative, content-based and demographic filtering[J]. Artificial Intelligence Review, 1999: 1-16.
- [12] SOMLO G L, HOWE A E. Adaptive lightweight text filtering[C]//Proceedings of the 4th International Symposium on Intelligent Data Analysis. Lisbon, Portugal: Springer, 2001.
- [13] ZHANG Y, CALLAN J, MINKA T. Novelty and redundancy detection in adaptive filtering[C]//Proceedings of the 25th annual international SIGIR conference on Research and development in information retrieval. New York, USA: ACM Press, 2002: 81-88.
- [14] ROBERTSON S. Threshold setting and performance optimization in adaptive filtering[J]. Information Retrieval, 2002, 5: 239-256. 
- [15] ZHANG Y, CALLAN J. Maximum likelihood estimation for filtering thresholds[C]//Proceedings of the 24th annual international ACM SIGIR conference on Research and development in information retrieval. New Orleans, LA, USA: ACM Press, 2001: 294-302.
- [16] GOLDBERG D, NICHOLS D, OKI B, et al. Using collaborative filtering to weave an information tapestry[J]. Communications of the ACM, 1: 61(10): 1-10.
- [17] BURKE R. Hybrid recommender systems: Survey and experiments [J]. User Modeling and User-adapted Interaction, 2002, 12(4): 331-37 
- [18] 王立才, 孟祥武, 张玉洁. 上下文感知推荐系统[J]. 软件学报, 2012, 23(1): 1-20.
- [19] SOBOROFF I, NICHOLAS C. Combining content and collaboration in text filtering[C]//Proceedings of the IJCAI' 99 Workshop: Machine Learning for Information Filtering, 1999. 
- [20] GE Y, LIU Q, XIONG H, et al. Cost-aware Travel Tour Recommendation[C]//Proceedings of the 17th ACM SIGKDD international conference on Knowledge discovery and data mining. San Diego, California, USA: ACM Press, 2011: 983.
- [21] CENA F, CONSOLE L, GENA C, et al. Integrating heterogeneous adaptation techniques to build a flexible and usable mobile tourist guide [J]. AI Communications, 2006, 19(4): 369-384.
- [22] HEIJDEN H van der, KOTSIS G, KRONSTEINER R. Mobile recommendation systems for decision making' on the go' [C] //International Conference on Mobile Business. 2005: 137-143.
- [23] TVEIT A. Peer-to-peer based recommendations for mobile commerce [C]//Proceedings of the 1st International Workshop on Mobile Commerce. Rome, Italy: ACM Press, 2001: 26-29.
- [24] MILLER B, ALBERT I, LAM S. Movielens unplugged: Experiences with a recommender system on four mobile devices[C]//Eighth International Conference on Intelligent User Interfaces. Miami, FL, USA: ACM Press, 2003: 263-266.
- [25] CHEVERST K, DAVIES N, MITCHELL K. Developing a context-aware electronic tourist guide: some issues and experiences[C]//Proceedings of the SIGCHI conference on Human factors in computing systems. The Hague, Netherlands: ACM Press, 2000: 17-24.
- [26] AVERJANOVA O, RICCI F, NGUYEN Q N. Map-Based Interaction with a Conversational Mobile Recommender System[C]//The Second International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies. IEEE, 2008: 212-218.
- [27] GABRILOVICH E, JOSIFOVSKI, VANJA, et al. Introduction to Computational Advertising [C] //Tutorials' 08 Proceedings of the 46th Annual Meeting of the Association for Computational Linguistics on Human Language Technologies. Stroudsburg, PA, USA: 2008: 1-1.
- [28] LI K, DU T C. Building a targeted mobile advertising system for location-based services [J]. Decision Support Systems, Elsevier, 2012.
- [29] KIM B, HA J, LEE S, et al. AdNext: A Visit-Pattern-Aware Mobile Advertising System for Urban Commercial Complexes [C] //12th Works on Mobile Computing Systems and Applications-HotMobile 2011. Phoenix, Arizona: [s.n.] 2011.
- [30] TSANG M, HO S-C, LIANG T-P. Consumer attitudes toward mobile advertising: An empirical study[J]. International Journal of Electronic Commerce, 2004, 8(3): 65-78.
- [31] GE Y, LIU C. A taxi business intelligence system[C]//Proceedings of the 17th ACM SIGKDD international conference on Knowledge discovery and data mining. San Diego, California, USA: ACM, 2011: 735-738.
- [32] LIU Q, GE Y, LI Z, et al. Personalized Travel Package Recommendation[C]//2011 IEEE 11th International Conference on Data Mining. Vancouver, Canada: IEEE, 2011: 407-416.
- [1] 纪文迪, 王晓玲, 周傲英. 广告点击率估算技术综述[J]. 华东师范大学学报(自然科学版), 2013, 2013(3): 1-14.
- [2] 岳昆, 王朝禄, 朱运磊, 武浩, 刘惟一. 基于概率图模型的互联网广告点击率预测[J]. 华东师范大学学报(自然科学版), 2013, 2013(3): 15-25.
- [3] 余文皓, 张蓉, 王立. 电子商务中的商品推荐系统[J]. 华东师范大学学报(自然科学版), 2013, 2013(3): 46-53.
- [4] 宋乐怡, 宫学庆, 张蓉, 刘鹏. 在线广告投放系统及技术的演变[J]. 华东师范大学学报(自然科学版), 2013, 2013(3): 106-117.