

DO&IT Seminar Series

Speaker: Alexander Tuzhilin
Professor of Information Systems
Stern School of Business, NYU

Date: Friday, November 6, 2009

Time: 2-3:30

Location: VMH 1335

Title: Improving Predictive Performance of Recommender Systems Using External Aggregate Ratings

Abstract:

One of the key problems in recommender systems, such as the ones used by Amazon and Netflix, is accurate estimation of unknown ratings of individual items for individual users in terms of the previously specified ratings and other characteristics of items and users. This talk describes a new method that improves estimations of individual ratings for certain types of recommender systems, including collaborative filtering and hierarchical linear regression models, by using externally provided aggregate ratings for groups of items and users, such as an average rating of action movies provided by graduate students. First, a framework for incorporating aggregate rating information is presented and then is applied to the aforementioned individual rating models. Then it is formally shown that this additional aggregate rating information provides more accurate recommendations of individual items to individual users than in the case when only individual ratings are used. Further, this theoretical finding is empirically confirmed on several datasets. Finally, it is shown that the aggregate rating information can also be used as a solution to the cold start problem of recommender systems, i.e., when only few ratings are specified for some items.

Bio:

Alexander Tuzhilin is a Professor of Information Systems and the NEC Faculty Fellow at the Stern School of Business, NYU. He received Ph.D. in Computer Science from the Courant Institute of Mathematical Sciences, NYU. His current research interests include data mining, personalization, recommender systems and CRM. He has published over 90 papers in the leading IS and CS journals

and conference proceedings on these and other research topics. Dr. Tuzhilin served on the organizing and program committees of numerous CS and IS conferences, including as a Program Co-Chair of the Third IEEE International Conference on Data Mining (ICDM) and as a Conference Co-Chair of the Third ACM Conference on Recommender Systems (RecSys). He has also served on the Editorial Boards of the IEEE Transactions on Knowledge and Data Engineering, the ACM Transactions on Management Information Systems, the INFORMS Journal on Computing (as an Area Editor), the Data Mining and Knowledge Discovery Journal, the Electronic Commerce Research Journal and the Journal of the Association of Information Systems. His 2005 IEEE TKDE paper “Towards the next generation of recommender systems...” with Gedas Adomavicius was listed among the top-10 most frequently cited papers published across all the Computer Science journals over the past 5 years, according to the Scopus’ TopCited service (www.topcited.com).