

Rishabh Mehrotra

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RESEARCH INTERESTS	Machine Learning, Web Search & Information Retrieval, Recommender Systems	
EDUCATION	University College London , London, United Kingdom PhD in Computer Science Area of Study: Machine Learning, Web Search Advisor: Emine Yilmaz Duration: Feb 2014 - Feb 2017 (expected) Birla Institute of Technology & Science , (BITS Pilani) India Integrated Dual Degree: BE(Hons.) Computer Science & MSc(Hons.) Mathematics Duration: August 2008 - June 2013 Master's Thesis: Sparsity & Structured Sparsity for Learning Coupled Representations from Multi-View Data	
HONORS AND AWARDS	Google Student Grant to present work on Web Search Tasks at 24th WWW 2015. Donald B Crouch Grant to present work on topic models at 36th ACM SIGIR 2013. Selected for Google Summer of Code, May 2012. Gold Medal, Project Presentation APOGEE 2012 for OmniscientBot. 1st Position, ACM ICL coding competition, APOGEE 2010.	
RELEVANT EXPERIENCE	Microsoft Research , Redmond, US <i>Research Intern</i> July'15 - Sept'15 Mentors: Susan Dumais, Paul Bennett, Jaime Teevan Responsible for designing and developing terascale machine learning based solutions for cross-domain personalization. Mining terabytes of user logs to derive insights for personalization. Microsoft Bing , London, UK <i>Applied Scientist Intern</i> April'15 - June'15 Mentors: Abhishek Arun, Katja Hofmann Developed techniques for counterfactual estimation of online metrics for the Related Searches team. Goldman Sachs , Reference Data Technology <i>Technology Analyst</i> June'13 - Dec'13 Developed Regression Testing framework for an event-driven SOA based framework. Google Summer of Code , Xapian: search engine library <i>Contract Developer</i> May'12 - Aug'12 Implemented Learning to Rank algorithms for LETOR framework. Statistical Machine Learning Group , NICTA, Canberra, Australia <i>Research Intern</i> May'12 - July'12 <i>Supervisor:</i> Scott Sanner, Wray Buntine Worked on improving Topic Modeling (LDA) for microblogs. Resulting paper accepted at SIGIR'13.	

PUBLICATIONS

- R. Mehrotra, P. Bhattacharya **The Information Network: Exploiting Causal Dependencies in Online Information Seeking**, at ACM SIGIR Conference on Human Information Interaction and Retrieval (CHIIR) 2016, Chapel Hill, North Carolina, USA.
- R. Mehrotra, P. Bhattacharya, E. Yilmaz, **Characterizing Users Multi-Tasking Behavior in Web Search**, at ACM SIGIR Conference on Human Information Interaction and Retrieval (CHIIR) 2016, Chapel Hill, North Carolina, USA.
- Rishabh Mehrotra, Emine Yilmaz, **Terms, Topics & Tasks: Enhanced User Modelling for Better Personalization**, In Proceedings of ACM SIGIR International Conference on the Theory of Information Retrieval (ICTIR 2015) Northampton, Massachusetts (USA).
- Rishabh Mehrotra, Emine Yilmaz, **Representative & Informative Query Selection for Learning to Rank using Submodular Functions**, In Proceedings of 38th Annual ACM SIGIR Conference on Research & Development on Information Retrieval (SIGIR 2015) Santiago, Chile.
- R. Mehrotra, P. Bhattacharya; **Modeling the Evolution of User-generated Content on a Large Video Sharing Platform**, In Proceedings of the Web Science Track at 24th International World Wide Web Conference (WWW-15), Florence, Italy.
- R. Mehrotra, E. Yilmaz; **Towards Hierarchies of Search Tasks & Subtasks**, In Proceedings of the Poster Track at 24th International World Wide Web Conference (WWW-15), Florence, Italy.
- R. Mehrotra; **User Modelling for Personalization: Terms, Tasks & Beyond**. In Proceedings of Doctoral Consortium at the 8th ACM International Conference of Web Search and Data Mining (WSDM 2015), Shanghai.
- R. Mehrotra, E. Yilmaz; **A Tensor Based Approach for Coupling Search Tasks and Topical Interests for User Modelling** . In Proceedings of Workshop on Heterogeneous Information Access at 8th International ACM WSDM 2015, Shanghai.
- R. Mehrotra, E. Yilmaz, M. Verma; **Task-Based User Modeling for Personalization via Probabilistic Matrix Factorization**. In Proceedings of the 8th ACM Conference on Recommender Systems (RecSys 2014), Silicon Valley, USA.
- R. Mehrotra, S. Sanner, W. Buntine, L. Xie; **Improving LDA topic models for microblogs via automatic tweet labeling and pooling**. In Proceedings of 36th Annual ACM SIG Information Retrieval Conference (SIGIR 2013), Dublin, Ireland.
- R. Mehrotra, D. Chu, S.A. Haider, I. Kakadiaris; **It takes two to tango: Coupled Dictionary Learning for Cross-Lingual Information Retrieval**. In proceedings of 26th Annual Conference on Neural Information Processing Systems (NIPS 2012) Workshop on Analysis Operator Learning vs. Dictionary Learning: Fraternal Twins in Sparse Modeling, Lake Tahoe, Nevada, USA.
- R. Mehrotra, R. Agrawal, S.A. Haider; **Dictionary Based Sparse Representation for Domain Adaptation**, In Proceedings at 21st ACM International Conference on Information and Knowledge Management CIKM 2012, Maui, USA.
- S.A. Haider, R. Mehrotra; **Corporate News Classification and Valence Prediction: A Supervised Approach**, In Proceedings of 49th ACL HLT 2011 Workshop WASSA, Portland, USA.
- R. Agrawal, R. Mehrotra, A.S. Mandal; **Neural Self-Organization based Rectilinear Steiner Minimal Tree Generation in 3 Dimensions**, accepted at 14th International Conference on Modeling and Simulation, Cambridge.

WORKING PAPERS/
UNDER REVIEW

R. Mehrotra, P. Bhattacharya; **Network A/B: Incorporating Causal Influence Effects**

R. Mehrotra, S. Dumais, P. Bennett, J. Teevan; **Paper on Cross-Domain News Personalization**

R. Mehrotra, E. Yilmaz; **Extracting Bayesian Hierarchies of Search Tasks & Subtasks**

R. Mehrotra, P. Bhattacharya; **"Internet's Guilty Pleasures": A Supply-side Analysis of Online Video Uploads using Hawkes Process Models**

INDUSTRIAL
PROJECTS

No A/B: Counterfactual Estimation of Online Metrics
Microsoft Bing, London, UK
Worked with Related Searches team to develop techniques for estimating online metrics in an offline manner via counterfactual techniques.

Mobile sensor based Contextual Awareness for Urban Positioning
SignalBox Inc, London, UK
Worked on developing the Android computer vision module to increase the positioning accuracy and context awareness of mobile devices. Technologies used: OpenCV, Android.

Adaptive Testing for Personalized Education
Knolskape Solutions, Bangalore
Developed the adaptive testing module for evaluation of candidate proficiency based on Item Response Theory to quickly gauge candidate ability level. Additionally, developed mechanisms of candidate profiling for further training/assessment.

OpinionWatch - Topic Modelling for Microblog NICTA Canberra, Australia
Contributed to the development of the OpinionWatch project. Developed algorithms to improve performance of topic models on microblog content.

Search Result Ranking
Xapian Search Engine (Google Summer of Code)
Implemented listwise approach ranking algorithm for the learning to rank module to rank the results based on the issued search query.

SKILLS & TOOLS

Hadoop, Hive, Spark, Pig, MySQL, MongoDB
Large-scale, distributed systems design and development
Scaling, performance and scheduling and ETL techniques
C, C++, Java, C# , Python, R, Matlab

RESEARCH TALKS

Cross Domain News Personalization, Research Seminar, Microsoft Research, Redmond, US (Sept'15)
Counterfactual Estimation of Online Metrics, Research Talk, Microsoft Bing, London, UK (June'15)
Task Based User Modeling, Invited Research Talk, Lumi Inc., London, UK (Dec'14)
Query Selection for Learning to Rank, Reading Group talk at Microsoft Research Cambridge, UK.
Adaptive Learning, Tech Talks, Knolskape Solutions Pvt Ltd, Bangalore, May13.
Learning with Structured Sparsity, Academic Research Seminar, University of Houston, USA, Nov12.
Topic Modeling for Noisy Content, Friday Seminar Series, University of Houston, USA, Sept12.