

Rishabh Mehrotra

CONTACT INFORMATION

5th Floor, One Euston Sq
London Media Technology Center
University College London
London, UK. NW1 2FD

Voice: +44 7587 268 666
E-mail: r.mehrotra@cs.ucl.ac.uk
Web: www.rishabhmehrotra.com
Blog: <http://blog.rishabhmehrotra.com>

RESEARCH INTERESTS

Machine Learning, Web Search & Information Retrieval, Recommender Systems

EDUCATION

University College London, London, United Kingdom

PhD in Computer Science
Area of Study: Web Search, Machine Learning
Advisor: Dr. Emine Yilmaz
Duration: Feb 2014 onwards

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

PROFESSIONAL ACTIVITIES

Co-Organizer: TREC Tasks Track 2015, 2016, 2017 ([website](#))
PC Member: SIGIR 2017, CIKM 2017, NeuIR 2017, WWW 2016, RecSys 2016
Reviewer: AAAI 2017, WSDM 2015, WWW 2015, ICML 2015, ECIR 2015, SIGIR 2015

HONORS AND AWARDS

Y. Ali Grant for Research, 2016
ACM SIGIR Travel Grants 2015, 2016, 2017
Research on *Search Tasks* supported by *Google Faculty Research Award*, 2015
Google Student Grant to present work on Web Search Tasks at 24th WWW 2015.
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
Research Intern (Measurement Sciences Team) **June'16 - Sept'16**
Mentors: Ahmed Hassan Awadallah, Imed Zitouni
Developed terascale machine learning based solutions for understanding user interaction sequences for satisfaction prediction. Mining terabytes of logs for developing task based satisfaction metrics.

Microsoft Research, New York, US
Research Intern **Mar'16 - June'16**
Mentor: Fernando Diaz, Hanna Wallach
Developed techniques for auditing search engines for demographic bias in performance.

Microsoft Research, Redmond, US
Research Intern **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
Applied Scientist Intern **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
Technology Analyst **June'13 - Dec'13**
Developed Regression Testing framework for an event-driven SOA based framework.

Statistical Machine Learning Group, NICTA, Canberra, Australia
Research Intern **May'12 - July'12**
Supervisor: Scott Sanner, Wray Buntine
Worked on improving Topic Modeling (LDA) for microblogs. Resulting paper accepted at SIGIR'13.

TUTORIALS

Query Log Mining for Inferring User Tasks and Needs ([link](#))
Rishabh Mehrotra and Emine Yilmaz
Search Solutions, London 2016

PUBLICATIONS

Characterizing and Predicting Supply-side Engagement on Crowd-contributed Video Sharing Platforms
Rishabh Mehrotra and Prasanta Bhattacharya
ICTIR 2017

Extracting & Leveraging User Interaction Sequences for Search Satisfaction Prediction
Rishabh Mehrotra, Imed Zitouni, Ahmed Hassan Awadallah and Ahmed El Kholi
SIGIR 2017

Extracting Hierarchies of Search Tasks & Subtasks via a Bayesian Nonparametric Approach
Rishabh Mehrotra and Emine Yilmaz
SIGIR 2017

Auditing Search Engines for Differential Performance Across Demographics
Rishabh Mehrotra, Ashton Anderson, Fernando Diaz, Amit Sharma, Hanna Wallach and Emine Yilmaz
WWW 2017

Identifying User Sessions in Interactions with Intelligent Assistants
Rishabh Mehrotra, Imed Zitouni, Ahmed Hassan Awadallah, Milad Shokouhi and Ahmed El Kholi
WWW 2017 Posters

Query Log Mining for Inferring User Tasks and Needs
Rishabh Mehrotra, Emine Yilmaz
ECML 2016

Uncovering Task Based Behavioral Heterogeneities in Online Search Behavior
Rishabh Mehrotra, Prasanta Bhattacharya, Emine Yilmaz
SIGIR 2016

Deconstructing Complex Search Tasks
Rishabh Mehrotra, Prasanta Bhattacharya, Emine Yilmaz
NAACL 2016

Characterizing Users Multi-Tasking Behavior in Web Search

R. Mehrotra, P. Bhattacharya, E. Yilmaz
CHIIR 2016

The Information Network: Exploiting Causal Dependencies in Online Information Seeking

P. Bhattacharya, R. Mehrotra
CHIIR 2016

Terms, Topics & Tasks: Enhanced User Modelling for Better Personalization

Rishabh Mehrotra, Emine Yilmaz
ICTIR 2015

Representative & Informative Query Selection for Learning to Rank using Submodular Functions

Rishabh Mehrotra, Emine Yilmaz
SIGIR 2015

Modeling the Evolution of User-generated Content on a Large Video Sharing Platform

R. Mehrotra, P. Bhattacharya
WWW 2015 Posters

Towards Hierarchies of Search Tasks & Subtasks

R. Mehrotra, E. Yilmaz
WWW 2015 Posters

User Modelling for Personalization: Terms, Tasks & Beyond

R. Mehrotra
WSDM 2015

A Tensor Based Approach for Coupling Search Tasks and Topical Interests for User Modelling

R. Mehrotra, E. Yilmaz
HIA 2015

Task-Based User Modeling for Personalization via Probabilistic Matrix Factorization

R. Mehrotra, E. Yilmaz, M. Verma
RecSys 2014 Posters

Improving LDA topic models for microblogs via automatic tweet labeling and pooling

R. Mehrotra, S. Sanner, W. Buntine, L. Xie
SIGIR 2013

It takes two to tango: Coupled Dictionary Learning for Cross-Lingual Information Retrieval

R. Mehrotra, D. Chu, S.A. Haider, I. Kakadiaris
NIPS 2012 Workshop on Analysis Operator Learning vs. Dictionary Learning.

Dictionary Based Sparse Representation for Domain Adaptation

R. Mehrotra, R. Agrawal, S.A. Haider
CIKM 2012

Corporate News Classification and Valence Prediction: A Supervised Approach

S.A. Haider, R. Mehrotra

ACL HLT 2011 WASSA

Neural Self-Organization based Rectilinear Steiner Minimal Tree Generation in 3 Dimensions

R. Agrawal, R. Mehrotra, A.S. Mandal
ICMS 2011

UNDER REVIEW

Deep Sequential Models for Task Satisfaction Prediction

Rishabh Mehrotra, Ahmed Hassan Awadallah, Emine Yilmaz, Milad Shokouhi, Imed Zitouni and Ahmed El Kholly under review

Task Embeddings: Learning Query Embeddings using Task Context

Rishabh Mehrotra, Emine Yilmaz
under review

Profile Domain and Representation Effects in Personalized News Query Recommendation

R. Mehrotra, S. Dumais, P. Bennett, J. Teevan

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

Xpian 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

Tensorflow, Keras

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

INVITED TALKS

Auditing Search Engines at K4All Workshop on Online Content Delivery, London, UK (June 2017)
User Interaction Sequences for Satisfaction Prediction, Microsoft Bing, Bellevue (Sept'16)
Search Tasks, Proactive Search & Digital Assistants, Machine Learning Meetup, Gurgaon (June'16)
Auditing Search Engines for Demographic Bias, Microsoft Research, New York (June'16)
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.

TEACHING & SUPERVISORY ACTIVITIES

Teaching Assistant for Courses (UCL)

- Web Economics (2016)
- Robotics Programming (2016)
- Information Retrieval & Data Mining (2015)

Supervision of Student Projects (UCL)

- Min Ong, Master's Thesis, *Diversity aware ranking of users*
- Jay Zheng, Master's Thesis, *Evaluation Metrics for Product Recommendations*
- Mingming Fan, Master's Thesis, *Inferring Causal Impact of Bike Sharing Systems*
- Wenhao Shen, Master's Thesis, *High Volume Financial Repository*
- Asif Seth, Master's Thesis, *Time Series Modelling for Flying Binary*
- Lingyun Shen, Master's Thesis, *Optimal Pricing Information*