Rajiv Ashu Khanna   rajivak@utexas.edu
PhD Candidate, UT Austin   **Ph: 5129476729**

Publications

- *Scalable Greedy Support Selection via Weak Submodularity.* Rajiv Khanna, Ethan Elenberg, Alex Dimakis, Sahand Neghaban, Joydeep Ghosh. **AISTATS 2017** (to appear)

- *Information Projection and Approximate Inference for Structured Sparse Variables.* Rajiv Khanna, Joydeep Ghosh, Russell Poldrack, Oluwasanmi Koyejo **AISTATS 2017** (to appear)

- *A Unified Analysis of Frank Wolfe and Matching Pursuit.* Francesco Locatello, Rajiv Khanna, Michael Tschannen, Martin Jaggi **AISTATS 2017** (to appear)

- *Pursuits in Structured Non-Convex Matrix Factorizations.* Rajiv Khanna, Francesco Locatello, Michael Tschannen, Martin Jaggi. Arxiv Report.

- *A Deflation Method for Structured Probabilistic PCA.* Rajiv Khanna, Joydeep Ghosh, Russell A. Poldrack, Oluwasanmi Koyejo **SDM 2017** (to appear)

- *Examples are not Enough, Learn to Criticize! Criticism for Interpretability.* Been Kim*, Rajiv* Khanna, Oluwasanmi Koyejo*. **NIPS 2016 (Oral)**

- *Restricted Strong Convexity implies Weak Submodularity*. Ethan Elenberg, Rajiv Khanna, Alex Dimakis, Sahand Neghaban. **NIPS 2016** Workshop on Learning in High Dimensions with Structure.

- T*owards a Better Understanding of Predict and Count Models.* S. Sathiya Keerthi, Tobias Schnabel, Rajiv Khanna. Arxiv report.

- *Sparse Submodular Probabilistic PCA.* Rajiv Khanna, Joydeep Ghosh, Russell A. Poldrack, Oluwasanmi O. Koyejo **AISTATS 2015 (Oral)**

- *A Deflation Method for Probabilistic PCA.* Rajiv Khanna, Joydeep Ghosh, Russell A. Poldrack, Oluwasanmi Koyejo. **NIPS 2015** Workshop on Advances in Approximate Bayesian Inference.

- *On Prior Distributions and Approximate Inference for Structured Variables.* Oluwasanmi O. Koyejo, Rajiv Khanna, Joydeep Ghosh, Russell A. Poldrack **NIPS 2014**

- *Parallel Matrix Factorization for Binary Response.* Rajiv Khanna, Deepak Agarwal, Liang Zhang and Beechung Chen. **IEEE BigData 2013**

- *Estimating Rates of Rare Events with Multiple Hierarchies through Scalable Log-linear Models*. Deepak Agarwal*; Rahul Agrawal* ; Rajiv Khanna*; Nagaraj Kota*. **KDD 2010**

- *Translating Relevance Scores to Probabilities for Contextual Advertising*. Deepak Agarwal*; Evgeniy Gabrilovich*; Rob Hall*; Vanja Josifovski*; Rajiv Khanna*. **CIKM 2009**

- *Structured Learning for Non-Smooth Ranking Losse*s. Soumen Chakrabarti, Rajiv Khanna, Uma Sawant, Chiru Bhattacharyya. **KDD 2008**

Professional Experience

Program Committee/ Reviewer : NIPS 2016, WWW 2017, Workshop on Advances in Approx. Bayesian Inference 2015/2016.

ETH Zurich (Summer 2015)
- Generalized Pursuit algorithms. (Mentor: Martin Jaggi)

Microsoft Research (Summer 2014)
- Word Embeddings: Worked on a text mining problem that involves representation of words as vectors which can then be used in various ways such as features for a prediction problem.

LinkedIn Inc. (Summer 2013)
- Online features for contextual advertising – Explored inclusion of online features within limitations of the existing Ad serving infrastructure. Proposals showed lifts, slated for bucket testing.

Research Engineer at Yahoo! Labs Bangalore (July 2008-July 2012)

- Web scale recommendation systems – Part of team that developed and tested matrix factorization based recommendation systems on real world data of the order of ~1 billion events using map-reduce. The models were tested over real-   world data and gave significant lifts in Click-Through Rates (CTR) when   compared to the other state-of-the-art methods.
  - Modeling skewed data – Implemented models that address the challenges of modeling CTR and CTR-derived goals. These problems are difficult because of the scale, low CTR, non-trivial derived goals and object hierarchies.
  - Information corroboration – Given data extracted from different web sources having potentially conflicting information, we developed graph-transduction algorithms to filter the "most likely correct" info. The methods we developed passed production-level quality tests and as a part of an extraction pipeline enriched content information for entities in the order of hundreds of thousands.

IIT Bombay
- Learning to rank for non-smooth ranking losses (MTech thesis; Guide: Prof Soumen Chakrabarti): Our objective is to learn a real-valued ranking function from the given labeled training data. Using structured learning paradigm, we directly optimize for non-smooth ranking losses like Mean Reciprocal Rank (MRR) and Normalized Discounted Cumulative Gain (NDCG) etc.
- Uncertainty in databases (MTech Seminar)

Relevant Course Work
- (*UT Austin*) Probability and Stochastic Processes, Large Scale Learning, Statistical Modeling II, Optimization in Engg Systems, Game Theory, Measure theoretic probability, Large Scale Optimization (Audit), Randomized Algorithms (Audit),
- (*IIT Bombay*) Statistical Foundations of Machine Learning, Web Mining and Extraction, Artificial Intelligence, Probabilistic Graphical Models, Algorithms & Complexity, Object Oriented Programming, Convex Optimization(Audit).

Technical Skills
- R, Matlab, Perl, Python, Shell scripting, C, Java, Hadoop, Pig.

Academics

Degree	University	Year	Grade
PhD	UT Austin	2012-	4.0/4.0 (GPA)
M.Tech (Masters)	IIT Bombay	2006-2008	9.78/10 (CPI)
B.Tech (undergrad)	NIT Jallandhar	2002-2006	82.34/100 (%)

Achievements/Awards:
- Travel Award (NIPS 2014)
- One of the two students (out of 85) awarded the Phillips Scholarship, on basis of academic performance at Department of CSE, IIT Bombay.
- Rank 1 amongst 55 CS MTech students at IIT Bombay throughout the course, awarded "most outstanding student" of outgoing 2008 Masters batch. Top-5 in undergrad.
- Ranked 97 in GATE (CS) in 2006 out of over 22000 students
- Ranked 452 (stage 1) and 4292 (stage 2) in IIT-JEE undergrad entrance 2002 (forgone admission in favor of studying computer science).
- Test scores GRE (Nov 2012) – 330/340, TOEFL (Nov 2012) – 117/120