

Kriti Puniyani

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Research Interests

Machine Learning, Computational Biology, Text Mining, Social Media Analysis.

Educational Record

- **Carnegie Mellon University:** *Ph.D., Computer Science*, expected summer 2013 (GPA: 3.98/4.00)
 - Thesis: Learning spatiotemporal gene networks from ISH images.
 - Advisor: Eric P. Xing
- **IIT Bombay:** *M.Tech., Computer Science*, 2006. (CPI: 9.71/10.0)
 - Thesis: Ranking and indexing for semantic search.
 - Advisor: Soumen Chakrabarti
- **University of Mumbai:** *B.E., Information Technology*, 2004. (CPI: 77.1%, highest CPI in class)

Honors and Awards

- Google Anita Borg scholar, 2011.
- Best research talk awards in the LTI student research symposium in 2009 and 2010.
- Google Anita Borg finalist, 2009.
- The Nilesh Vashee fellowship for best performance in M.Tech, Fall 2004.
- Ranked third overall in the Information Technology Department of Mumbai University from among more than 1800 students.
- The J. R. D. Tata scholarship for outstanding academic performance (2002, 2003, 2004).
- Travel awards: NSF (RECOMB 2013), Google (ICML 2012), Department of Energy (ISMB 2010), ISCB and NSF (ISMB 2010), Microsoft (WWW 2006).
- One of 75 grad students invited to attend the Google grad CS forum 2012.

Publications

1. **Kriti Puniyani**, Eric Xing, *GINI: From ISH images to gene interaction networks*. **PLOS Computational Biology**, 2013 (accepted July 30, 2013).
2. Eric P. Xing, Ross Curtis, Seunghak Lee, Junming Yin, **Kriti Puniyani**, Wei Wu, Peter Kinnaird, *GWAS in a Box: Statistical and Visual Analytics of Structured Associations via GenAMap*, (under review, draft available) submitted 2013.
3. **Kriti Puniyani**, Eric Xing, *NP-MuScL: Unsupervised Global Prediction of Interaction Networks from Multiple Data Sources* **Journal of Computational Biology**, 2013 (accepted June 2013).
4. **Kriti Puniyani**, Eric Xing, *NP-MuScL: Unsupervised Global Prediction of Interaction Networks from Multiple Data Sources*. Proceedings of the 17th annual international conference on **RECOMB** (Research in Computational Molecular Biology), LNCS Vol. 7821, pp 173-185, 2013.
5. **Kriti Puniyani**, Eric Xing, *Inferring gene interaction networks from ISH images via kernelized graphical models*. Proceedings of the 12th **ECCV** (European Conference on Computer Vision), LNCS Vol. 7577, pp 72-85, 2012.
6. S Balakrishnan, **Kriti Puniyani**, John Lafferty, *Sparse additive functional and kernel CCA*. Proceedings of the 29th **ICML** (International Conference on Machine Learning) 2012, Edinburgh, Scotland.

7. **Kriti Puniyani**, Christos Faloutsos, Eric P. Xing, *SPEX²: Automated Concise Extraction of Spatial Gene Expression Patterns from Fly Embryo ISH Images*. **ISMB** (Intelligent Systems for Molecular Biology), Bioinformatics Vol. 26, Issue 12, pp i47-i56, 2010.
8. **Kriti Puniyani**, Seyoung Kim, Eric P. Xing, *Multi-Population GWA Mapping via Multi-Task Regularized Regression*. **ISMB**, Bioinformatics Vol. 26, Issue 12, pp i208-i216, 2010.
9. **Kriti Puniyani**, Jacob Eisenstein, Shay Cohen and Eric P. Xing, *Social Links from Latent Topics in Microblogs*. Social Media Workshop, **NAACL** 2010 (best talk award to Jacob Eisenstein).
10. Manish Bhide, V. Chakaravarthy, A. Gupta, H. Gupta, **Kriti Puniyani**, M. Mohania, P. Roy, S. Roy, and V. Sengar, *Enhanced Business Intelligence Using EROCS*. **ICDE** 2008 (International Conference on Data Engineering), Mexico.
11. Soumen Chakrabarti, **Kriti Puniyani**, and Sujatha Das, *Optimizing Scoring Functions & Indexes for Proximity Search in Type Annotated Corpora*. Proceedings of the 15th **WWW** (World Wide Web conference), ACM, pp 717-726, 2006.

Book Chapter

- Soumen Chakrabarti, Sujatha Das, Vijay Krishnan, **Kriti Puniyani**, Text search enhanced with types and entities. Chapter in *Text Mining: Theory, Application, and Visualization*, Srivastava and Sahami, eds., 2008.

Work Experience

1. **Google+ research and analytics intern: June 2012 – Sept 2012**
Machine learning models for G+ social data.
2. **Yahoo! (Technology & Research Group), Bangalore: February 2007 - July 2007**
Approximate wrapper induction techniques for enhanced web retrieval, and citation extraction from webpages using conditional random fields.
3. **IBM India Research Labs (IRL): August 2006 - February 2007**
Data analytics techniques for automatically extracted information from unstructured text data.

Selected Talks

1. Invited talk in the CMU ML lunch on “Unsupervised global prediction of interaction networks from multiple image data sources” (Feb 2013).
2. Invited talk in the NYC predictive analytics meetup on “ML classroom: SVMs and logistic regression” (April 2011).
3. Awarded the best research talk award for a talk on "Automated Gene Expression Analysis from Drosophila Embryo ISH Images" in the Student Research Symposium at LTI, October 2010.
4. Invited talk on "*Preparing Your PhD Proposal*" to around 100 PhD students, with Prof. Ming Lin, at the CRA-W grad cohort for women, April 2010, Seattle.
5. Awarded the best talk award for a talk on "Incorporating Population Structure in Association Mapping" in the Student Research Symposium at LTI, October 2009.
6. Invited talk on "Type-enabled Proximity Search Using Entities and Relations" in a one week Short Term Training Program on "Advanced Database Concepts & Applications" for Engineering College Teachers on June 6, 2006 in Don Bosco Institute of Technology, Mumbai.
7. Invited talk on "Preserving Privacy in Data Mining" in SecNet 2006 to more than 100 industry and academic attendees on 5th March 2006, at IIT Bombay.
8. Won 2nd Prize (out of 250 participants) for presentation of a paper on "Smart Cards: Security & Solutions" at Abhyantriki, K.J.Somaiya CoE, Mumbai in Jan 2003.

Teaching Assistantships

1. Probabilistic Graphical Models (Fall 2009, Spring 2013): Prof. Eric Xing
2. Statistical Machine Learning (Spring 2008): Prof. Larry Wasserman and Prof. John Lafferty
3. Web Search and Mining (Spring 2006): Prof. Soumen Chakrabarti

4. Statistical Foundations of Machine Learning (Fall 2005): Prof. Soumen Chakrabarti
 5. Software Systems Lab (Spring 2005): Prof. G Sivakumar
 6. Advanced Programming (Fall 2004): Prof. S Arunkumar
- Responsible for conducting lectures, tutorials, supervising assignments, setting & grading examinations, and mentoring students in their research course projects.

Courses

- PhD: Intermediate statistics, machine learning, optimization, statistical machine learning, graphical models, molecular biology, social media analysis, algorithms for natural language processing, social media analysis, cell systems and modeling.
- MTech: Approximation algorithms, hypertext retrieval & mining, data mining, advanced data mining, artificial intelligence, databases, algorithms & complexity, language processors, network security.

Service

- Reviewer for: IEEE Transactions on Knowledge and Data Engineering, PLoS Computational Biology, NIPS, ICML, RECOMB SB-RG-DREAM, ISMB/ECCB, RECOMB.
- Vice-president of the Indian Graduate Student Association of Carnegie Mellon University (2009-2010)
- Member of the LTI student activities committee (2008-2011)
- Member of Dec/5 - the social support organization of CMU SCS graduate students (2008-2010)
- Student Placement Representative, IIT Bombay, 2005-2006
- Technical Secretary of Hostel-11, IIT Bombay, 2005-06
- Member of the organizing team of SecNet 2005, a workshop on Computer Security
- Event Head of the Technical Paper Presentation of 360 Degrees
- Hospitality Head of Whizion-2002, the Techfest organized by IEEE-RAIT.