

Pratik Jawanpuria

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RESEARCH INTEREST My primary research interests lie in Machine Learning, Optimization and their applications. In my recent works, I have proposed optimization formulations for kernel learning under various set-ups (for example Multiple Kernel Learning, Multi-task Learning, Rule Learning) and efficient algorithms for solving them.

EDUCATION

- ◇ **Indian Institute of Technology Bombay** 2010 -
Ph.D., Computer Science and Engineering CPI: 9.63/10
Title: Learning Kernels for Multiple Predictive Tasks
Advisor: Prof. J. Saketha Nath
Committee: Prof. Sunita Sarawagi, Prof. Pushpak Bhattacharyya
- ◇ **Indian Institute of Technology Bombay** 2005 - 2009
Bachelor of Technology (B.Tech.), Computer Science and Engineering CPI: 8.73/10

ACADEMIC HONORS & AWARDS

- ◇ IBM Ph.D. fellowship award for 2012
- ◇ Yahoo! Key Scientific Challenges Honorable Mention Award 2012.
- ◇ All India 27th Rank in the Joint Entrance Exam 2005 conducted for entrance into undergraduate program in IITs. The exam is taken by more than 2,00,000 students.
- ◇ Secured All India Rank 7th in National Level Science Talent Search Examination 2004
- ◇ Travel Awards for conferences SDM'11, ICML'11, ICML'12

PUBLICATIONS

- ◇ Pratik Jawanpuria, J. Saketha Nath. A Convex Feature Learning Formulation for Latent Task Structure Discovery. In *Proc. of the International Conference on Machine Learning 2012*
- ◇ Pratik Jawanpuria, J. Saketha Nath, Ganesh Ramakrishnan. Efficient Rule Ensemble Learning using Hierarchical Kernels. In *Proc. of the International Conference on Machine Learning 2011*
- ◇ Pratik Jawanpuria, J. Saketha Nath. Multi-task Multiple Kernel Learning. In *Proc. of the SIAM International Conference on Data Mining 2011*
- ◇ Pratik Jawanpuria, Manik Varma, J. Saketha Nath. On p-norm Path Following in Multiple Kernel Learning for Non-linear Feature Selection. (accepted in *International Conference on Machine Learning 2014*).
- ◇ Pratik Jawanpuria, J. Saketha Nath, Ganesh Ramakrishnan. Generalized Hierarchical Kernel Learning (submitted in *Journal of Machine Learning Research*).

RESEARCH EXPERIENCE

- ◇ **Research Scholar at IIT Bombay** *May 2010 - Present*
Conducting research in the area of machine learning and optimization, with application in kernel based learning frameworks.

- ◇ **Learning Low Dimensional Feature Representation in Multi-task Framework** (Ph.D. Seminar) *Spring 2009-10*
The aim was to study state-of-the-art techniques in Multi-task Learning for low dimensional feature representation. We also implemented and evaluated a novel kernel based approach for learning sparse feature representation among multiple tasks (SDM'11).
- ◇ **Query Translation Disambiguation for Web Cross Language Information Retrieval** (B.Tech. Project) *Aug 2008 - May 2009*
The aim was to improve the translation disambiguation of a query for Cross Lingual Information Retrieval using the structured information present in web data. We proposed and implemented a new query translation disambiguation system (in JAVA) that takes into consideration co-occurrences in different fields of structured data.
- ◇ **Minimally Supervised Named Entity Recognition in French Language** (Research Intern at INRIA Nancy- Grand Est Research Centre, France) *May 2008 - July 2008*
Worked on improving the existing named entity recognizer for French.
- ◇ **Word Sense Disambiguation** (B.Tech. Seminar) *Spring 2007-08*
Investigated various semi-supervised and unsupervised methods used in Word Sense Disambiguation as part of the literature survey leading to a seminar.

TECHNICAL SKILLS

- ◇ *Languages:* Java, C++, Matlab, R, Python
- ◇ *Operating Systems:* Linux, Microsoft Windows
- ◇ *Tools:* Weka, CVX, Eclipse, Lucene, Terrier

RELEVANT COURSES

Topics in Machine Learning, Statistical Relational Learning, Algorithms and Complexity, Probability and Linear Algebra, Foundations of Machine Learning, Statistical Inference, Convex Optimization, Graphical Models and Structured Learning

SELECTED PROJECTS

- ◇ **Semantic Role Labeling** *Spring 2009-10*
Built a Markov logic network based system to perform semantic role labeling on text data.
- ◇ **Inventory Management System** *Autumn 2007*
Implemented an inventory accounting and tracking system for managing the inventories in the academic institutions. PostgreSQL database was employed in its backend and a JAVA based interactive web portal was available to the users.
- ◇ **Morphological Analyzer for Sanskrit Language** *Summer 2007*
Identified the various morphological paradigms in the *Sanskrit* language and used a finite state machine to model the various paradigms. This was done as part of the *Natural Language Processing summer school* in IISc, Bangalore conducted by *Microsoft Research*.
- ◇ **File Transfer Protocol (FTP) Server** *Spring 2006-07*
Developed a FTP server in JAVA based on specifications of RFC-959, having a graphical user interface.

TEACHING EXPERIENCE

- ◇ **Dept. of CSE, IIT Bombay** *Teaching Assistant*
Courses: Program Derivation (Spring 2009-10), Pattern Recognition (Autumn 2010), Topics in Machine Learning (Spring 2010-11), Convex Optimization (Autumn 2011)

- WORK EXPERIENCE
- ◇ **Cisco Systems India Pvt. Ltd.** *Software Development Engineer*
Aug 2009 - Dec 2009
Bangalore, India
Part of the group working on Cisco health care solution. Involved in the development of user interface modules and back-end data storage.
- EXTRA-CURRICULAR
- ◇ Class representative of the CSE B.Tech. batch during the period 2007-09
 - ◇ Interested in travelling and reading
- REFERENCES
- ◇ **Saketha Nath**
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Indian Institute of Technology Bombay
E-mail: saketh@cse.iitb.ac.in
 - ◇ **Ganesh Ramakrishnan**
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