

EDUCATION

2010 to Present	Department of Computer Science and Engineering, IIT Madras
QUALIFICATION	M.S. (By Research), CGPA : 8.8
ADVISORS	Dr. Balaraman Ravindran and Dr. Ashish Vijay Tendulkar
COURSES	Introduction to Machine Learning, Data Mining, Algorithms for Computational Biology, Natural Language Processing & Advanced Data Structures and Algorithms, Optimization Methods in Signal Processing & Communications*
	*Course offered by Electrical Engineering, IIT Madras - Audit.
2006 to 2010	Sri Ram Engineering College, Anna University
QUALIFICATION	Bachelor of Engineering in Computer Science and Engineering, Aggregate : 80%

RESEARCH INTERESTS

- 1 Machine Learning
- 2 Graphical Models
- 3 Non-parametric Bayesian Methods
- 4 Optimization for Machine Learning

PUBLICATIONS

- 1 Saradindu Kar, **Deepak Vijayakeerthi**, Balaraman Ravindran and Ashish Vijay Tendulkar, Functional Site Prediction by Exploiting Correlations between Labels of Interacting Residues, *In Proceedings of ACM Conference on Bioinformatics, Computational Biology and Biomedicine* 2012.

PROJECTS

Sept 2012 - Present	Approximate Inference in Undirected Graphical Models using Higher-order LP Relaxations We propose an approach to iteratively tighten the relaxation by adding marginal constraints corresponding to larger cliques, which allows us to add arbitrary length clusters unlike the existing approaches which restrict the nature of clusters to be added. Unlike traditional message passing algorithms which operate uniformly on the whole graph, our method dynamically chooses regions to focus message-passing efforts. We have also empirically established the fact that marginal constraints arising from the <i>sub-cliques</i> are sufficient to obtain a tighter approximation even for problems with higher-order potentials.
Nov 2011 - June 2012	Identifying Functional Residues in Proteins through Cautious Collective Inference Proposed a cautious collective inference scheme which considers the sequence as well as the structural information of the protein. The cautious approach helps us to prevent cascading errors due to misclassification. One of the important contributions of the proposed scheme is its ability to handle class imbalance, while also exploiting the structure in the data.
April 2011	Maximizing AUC-ROC - Course Project for Data Mining Designed a classifier for maximizing AUC on the KDD Cup 2004 data-mining contest data. Placed 1st in a class of 60 and 14th in the overall contest standings.
Feb - Apr 2011	Protein Structure Comparison using Topic Models Extended the work by our group on representation of protein using Latent Dirichlet Allocation. Proposed a hybrid approach which considers both the structure as well as the sequence of the protein while constructing the representation.

SKILLS

Languages	C, C++, Java & MATLAB
Operating Systems	GNU/Linux, Windows

TEACHING ASSISTANTSHIPS

Jan 2011	Computational Engineering
Aug 2010	Computer Programming Lab
Aug 2011, Aug 2012	Introduction to Machine Learning
Jan 2012	Probabilistic Reasoning in Artificial Intelligence
Jan 2013	Data Mining

ACTIVITIES AND ACHIEVEMENTS

- 1 **Third** position in school in AISSCE.
- 2 Top **1.5%** in GATE(CS) 2010.
- 3 Won the **Best Scientific Application Award** at Yahoo! HackU 2011
- 4 Won the **Outstanding TA Award** for Aug 2011, Jan 2012, Aug 2012 & Jan 2013 Semesters
- 5 Organizing Machine Learning and Graphical Models Reading Groups
- 6 Reviewer for BDA 2012, ACM CIKM 2013 & NCVPRIPG 2013