

Parameswaran Raman

CONTACT INFORMATION	ML & Intelligence Lab, E2 489 Department of Computer Science University of California - Santa Cruz	Phone: (408) 306-4462 E-mail: params@ucsc.edu Webpage: http://people.ucsc.edu/~praman1/
RESEARCH INTERESTS	Optimization methods for Large Scale Machine Learning, Matrix Factorization, Learning to Rank, Graphical Models	
EDUCATION	PhD - Computer Science , UC Santa Cruz Advisor: S.V.N Vishwanathan (Transferred from Purdue University , West Lafayette, Indiana USA)	Aug 2014 - present
	PhD - Computer Science , Purdue University Advisor: S.V.N Vishwanathan	Aug 2013 - Aug 2014
	Masters - Computer Science , Georgia Institute of Technology	Aug 2009 - May 2011
	MSc (Integrated) - Software Engineering , PSG College of Technology, India	2003 - 2008
RESEARCH EXPERIENCE	<i>Graduate Research Assistant, UC Santa Cruz</i> <ul style="list-style-type: none">• Worked on a Robust Ranking algorithm for large-scale data (<i>Accepted for NIPS 2014</i>)• Working on an efficient distributed optimization approach for multinomial logistic regression type problems, especially when the number of classes is large. <i>Intern - Search Relevance (SNA), LinkedIn</i> <p>Worked on resolving issues of sample bias and position bias present in learning to rank systems with implicit feedback. Explored a variety of approaches, and ran offline and online experiments on LinkedIn Job Search portal to verify the effectiveness of the models.</p> <i>Graduate Research Assistant, Purdue University</i> <p>Performing Data Mining & Analysis on ITAP Informatics educational mobile and web apps data to infer relevance of user posts to the lecture topics using a model with standard measures like tf-idf and KL-divergence. Results were used to improve student engagement in classroom (<i>Accepted for EDM 2014</i>).</p> <i>Independent Research, Info Lab, Stanford University</i> <p>Explored the scope of using learning methods in crowd-sourcing systems, to improve label complexity and quality of judgements among workers. In addition, experimentally analyzed the effects of using various interfaces for categorization of items in a taxonomy, simultaneously trying to model their error rates.</p> <i>Graduate Research Assistant, Sonification Lab, Georgia Tech</i> <p>Prototyped tools to demonstrate key ideas that came up in two projects Auditory Menus and In-Vehicle Assistive Technology (IVAT). Applied machine learning techniques to detect the mood of the driver and provide rapid responses. (<i>Work was presented in several demos and papers accepted for ICAD 2010, CSUN 2010</i>).</p> <i>Research Assistant, Dept of Maths & Computer Applications, PSG Tech</i> <p>Worked with Dr Nadarajan and Dr Maytham Safar to propose effective cache replacement policies for Location-Dependent Data in mobile environments and implement tools for evaluating them. (<i>Findings resulted in publications in DCCA Jordan 2007 and PETRA 2008</i>).</p>	Aug 2013 - present Summer 2014 Aug 2013 - Aug 2014 Summer 2012 Aug 2009 - May 2011 2007 - 2008

INDUSTRY
EXPERIENCE

Software Engineer, Yahoo!, Sunnyvale

Jul 2011 - Jul 2013

- Worked for the Knowledge & Personalization group, on an entity extraction pipeline used by all personalization services. Used machine learning and NLP to detect word/phrase boundaries and rank extracted entities based on metrics such as aboutness and interestingness. Later part of my work involved designing a Knowledge Graph from scratch to represent entities and relationships from diverse sources.
- Worked on the Web Of Objects project, that creates a semantic knowledge base of entities, to deliver more personalized content for Yahoo!. Implemented tools to evaluate Entity Blocking & Matching. Performed data analysis and feature engineering for the models used in Entity Matching.
- Worked on the open source project Oozie, implementing a feature to make hadoop job counter information and pig stats information available to the end-users. Also fixed bugs in the system.

Software Engineering Intern, Intel, Chandler

Summer 2010

Developed a searching and indexing infrastructure to help silicon engineers find relevant product design information. Gathered requirements, interacted with customers, wrote tests and deployed the system to production. Received an instant recognition award for the work during this internship.

Application Developer, ThoughtWorks, Bangalore

Jun 2008 - Jul 2009

Designed and implemented web-services for the train ticket retailing system - thetrainline.com. Performed Build & Environment tasks. Worked in an agile setup with focus on test-driven development and continuous integration principles.

PUBLICATIONS

- Hyokun Yun, Parameswaran Raman, S.V.N. Vishwanathan. “**Ranking via Robust Binary Classification and Parallel Parameter Estimation in Large-Scale Data,**” *To appear in Proceedings of NIPS*. 2014.
- Mariheida Córdova Sánchez, Parameswaran Raman, Luo Si, Jason Fish. “**Relevancy Prediction of Micro-blog Questions in an Educational Setting,**” in *Proceedings of Proceedings of the 7th International Conference on Educational Data Mining, EDM*. 2014.
- Parameswaran Raman, Benjamin Davison, Myounghoon “Philart” Jeon, Bruce N. Walker. “**Reducing repetitive development tasks in auditory menu displays with the auditory menu library,**” in *Proceedings of the 16th International Conference on Auditory Display (ICAD)*. 2010.
- Parameswaran Raman, Narayanan Ramakrishnan, Manohar Ganesan, Gourab Kar, Dr Gregory D. Abowd. “**PiX-C: Express and Communicate (Augmenting Communication with Visual Input for Children in the Autism Spectrum),**” in *Poster presented at the UIST Student Innovation Contest*. 2010.
- Mary Magdalene Jane, Parameswaran Raman, Maytham Safar, Nadarajan R. “**PINE-guided cache replacement policy for location-dependent data in mobile environment,**” in *Proceedings of the First international conference on Pervasive Technologies Related to Assistive Environments, PETRA*. 2008.

OTHER PROJECTS

- **Optimization on the surface of the (Hyper)-Sphere**
Investigated the Thompson Problem, of determining the minimum energy configuration of n electrons located on the surface of a unit sphere. Experimented with a variety of optimization methods such as Projected Gradient Descent, Penalty Methods, Interior-Point Method, Stochastic Gradient Descent, Derivative Free Methods (Nelder-Mead) to mention a few and discussed some interesting findings.

- **A machine learning algorithm for prediction in Cricket**

Devised and evaluated the affects of using a hybrid learning algorithm using quadratic regression and k-nearest neighbor to the game of Cricket, for predicting target scores in interrupted matches. This method was an improvement over the current D/L method by also taking into account additional features such as power play and momentum of the game.

- **PiXC - Sentence Generation using Images**

Developed a Natural Language Generation system capable of generating sentences using a combination of images. Used a probabilistic weighting scheme to connect concepts that are related based on available training data. (*Presented as a poster at the UIST Conference 2010*).

- **Sentence Information Extraction**

Explored the problem of extracting Who, What, Where, How and Why phrases in a given sentence using a template-based parse-tree matching.

- **Twitter Sentiment Analysis**

Classify twitter feeds as having positive or negative sentiment from a dataset of feeds. Constructed additional datasets for analysis such as baseline, linguistic, contextual and semantic to analyze the various contributing features. Used SMO classifier for the analysis.

- **AI Cop**

Implemented a knowledge based decision system to solve a crime scene using the various events and facts received, and to identify goals/intentions of various characters involved in the story.

ACADEMIC SERVICES

- Co-Reviewer for UAI 2014
- Reviewer for AISTATS 2015

HONORS/AWARDS

- Graduate Research Assistantship, Georgia Tech
- Winner of Facebook Hackathon 2010 at Georgia Tech & selected to represent the finals at FB HQ
- Finalist for the poster presentation at UIST Student Innovation Contest 2010

COMPUTER SKILLS

- C++, Java, R, Python, Matlab, MPI, Hadoop, Unix, Lisp