Parameswaran Raman

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Summary

Looking for a research internship in Machine Learning. Specific interests include Convex Optimization, Graphical Models, Large Scale Learning and Ranking problems.

Education

PhD - Computer Science Advisor: Prof. SVN Vishwanathan *Aug 2013 - present*
Purdue University, West Lafayette, IN

Masters - Computer Science — GPA 3.7/4.0 *May 2011*
Georgia Institute of Technology, Atlanta, GA

Masters (Integrated) - Software Engineering — GPA 8.7/10.0 *May 2008*
PSG College of Technology, Coimbatore, India

Research Experience

- **Statistical Machine Learning Lab** *Purdue University* *Aug 2013 - Present*
  Working on a Stochastic Optimization Learning Algorithm for ranking. Specifically, exploring the learning to rank problem and its connection to robustness. Simultaneously, proposing a scalable algorithm (for cases where number of labels is huge) by borrowing optimization techniques from robust classification.
- **Graduate Research Assistant, ITAP** *Purdue University* *Aug 2013 - Present*
  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 will be used to improve student engagement in classroom.
- **Independent Research** *Info Lab, Stanford University* *Summer 2012*
  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.
- **Graduate Research Assistant** *Sonification Lab, Georgia Tech* *2009 - 2011*
  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. Presented the work via demos, posters and publications.
- **Research Assistant** *Dept of Maths & Computer Applications, PSG College of Technology* *2007 - 2008*
  Worked with Dr Nadarajan and Dr Maytham Safar to study cache replacement policies for Location-Dependent Data in mobile environments and implement tools for evaluating them. Findings resulted in publications in DCCA Jordan 2007 and PETRA 2008.

Industry Experience

Software Developer, *Yahoo!* *July 2011 - July 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 Developer Intern, *Intel Corporation* *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 award for exhibiting Intel values of Customer Orientation and Risk Taking.

Software Developer, *ThoughtWorks* *June 2008 - July 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.

Skills

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

Key Projects

- **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 probability based 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. Introduced higher-level features to provide meta-reasoning and identify goals/intentions of various characters involved in the story.

Publications/Posters

- 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.
- Parameswaran Raman, Maytham Safar, Nadarajan R, Mary Magdalene Jane. "**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.

Awards

- 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

LinkedIn

http://www.linkedin.com/in/parameswaranraman/