Ramanathan Narayanan

Contact Information

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Research Interests

Data mining, Text mining

Education

Ph.D. Computer Engineering, Northwestern University, Evanston, IL
Sept 2005 - Present
Advisor: Prof. Alok Choudhary
Thesis topic: Mining Text for Relationship Extraction and Sentiment Analysis

B.Tech. Computer Science and Engineering, IIT Kharagpur, Kharagpur, India
June 2001 - May 2005
Thesis topic: Indexing High Dimensional Data

Selected Publications

K.Zhang, R.Narayanan and A.Choudhary, Voice of the Customers: Text Mining Online Customer Reviews for Product Feature-based Ranking. In Workshop on Online Social Networks (WOSN '10), 2010.

R.Narayanan, B.Liu and A.Choudhary. "Sentiment Analysis of Conditional Sentences" Proceedings of Conference on Empirical Methods in Natural Language Processing (EMNLP-09). August 6-7, 2009. Singapore.

R.Narayanan, S.Misra, S.Lin and A.Choudhary. "Mining Protein Interactions from Text using Convolution Kernels". In AIBDM 2009, held in conjunction with Pacific Asia Conference on Knowledge Discovery and Data mining, April 2009.

R.Narayanan, S.Misra, S.Lin and A.Choudhary. Mining Protein Interactions from Text using Convolution Kernels. In Intelligent Systems for Molecular Biology (ISMB)[Poster], July 2008.

R.Narayanan, D.Honbo, J.Zambreno, G.Memik and A.Choudhary. An FPGA Implementation of Decision Tree Classification. In IEEE International Conference on Design, Automation and Test in Europe (DATE), April 2007.

R.Narayanan, B.Ozisikyilmaz, J.Pisharath, J.Zambreno, G.Memik, and A.Choudhary. MineBench: A Benchmark Suite for Data Mining Workloads. In Proceedings of the 2nd IEEE International Symposium on Workload Characterization (IISWC), October 2006.

A.Choudhary, R.Narayanan and K.Zhang. High-End Analytics and Data Mining for Sustainable Competitive Advantage. In ICISTM 2010.

S.Misra, R.Narayanan, D.Honbo and A.Choudhary. (Book Chapter) High Performance Distributed Data Mining. Next Generation of Data Mining, CRC Press.

S.Misra, R.Narayanan, S.Lin and A.Choudhary. FANGS: High Speed Sequence Mapping for Next Generation Sequencing Reads. In Proceedings of ACM Symposium of Applied Computing (ACM SAC), March 22-26, 2010, Sierre, Switzerland.

S.Misra, R.Narayanan, S.Lin, W.Liao and A.Choudhary. pFANGS: Parallel High Speed Sequence Mapping for Next Generation 454-Roche Sequencing Reads. In Proc. Ninth IEEE International Workshop on High Performance Computational Biology (IPDPS 2010), April, 2010, Atlanta, GA.

S.Pati, R.Narayanan, G.Memik, A.Choudhary and J.Zambreno. Design and Implementation of an FPGA Architecture for High-Speed Network Feature Extraction. In International Conference on Field Programming Technology , December 2007.

A.Choudhary, R.Narayanan, B.Ozisikyilmaz, J.Pisharath, J.Zambreno and G.Memik. Optimizing Data Mining Workloads using Hardware Accelerators. In 10th Workshop On Computer Architecture Evaluation using Commercial Workloads (CAECW), February 2007.

B.Ozisikyilmaz, R.Narayanan, J.Zambreno, G.Memik, and A.Choudhary. An Architectural Characterization Study of Data Mining and Bioinformatics Workloads. In Proceedings of the 2nd IEEE International Symposium on Workload Characterization (IISWC), October 2006.

Experience

A9 (Amazon), Palo Alto, California USA
Summer Intern **June-September 2009**

- Worked with the Search Analytics team on analyzing query traffic trends. Developed an algorithm to find n-grams in queries satisfying certain constraints.

Google, Mountain View, California USA
Summer Intern **June-September 2007**

- Worked with the Google Maps team on developing a moderation framework to handle user-edits to Google Maps data.

IBM Research, New Delhi, India
Summer Intern **May-August 2004**

- Designed and implemented the architecture for a personalized web browser system. The system used association mining techniques to track user patterns and enhance the browsing experience.

Northwestern University, Evanston, Illinois USA
Research Assistant **August 2005 to present**

- Center for Ultra-Scale Computing and Information Security
  Worked in multiple research projects. Focus of Ph.D thesis is on extracting relationships and sentiments from textual data. Also developed a widely used benchmark suite for data mining workloads. Designed and implemented reconfigurable data mining architectures. Recent projects involve Knowledge Extraction from Biomedical Literature Databases and Opinion mining from online social networks.

Chennai Mathematical Institute Chennai, India
Summer Intern **May-August 2003**
Studied the properties and performance of several error-correcting codes.

Coursework	**Graduate:** Advanced Computer Architecture, Distributed Systems, Introduction to Parallel Computing, Algorithms for VLSI-CAD, Design and Analysis of Algorithms, Computational Complexity, Advanced Data mining, Statistics for Bioinformatics, Advanced Algorithms, Computational Complexity, Engineering Entreprenuership **Independent Study Courses:** Semantic Web, Data Mining in Social Networks **Undergraduate:** Data Warehousing and Mining, Database Management, Operating Systems, Algorithms for Bioinformatics, Artificial Intelligence, Compiler Design, Networking, Cryptography
Technical Skills	Programming: C, C++, Python, SQL Software: Clementine, Weka, Svm-light, LIBSVM, Matlab, PyML, VTune Performance Analyzer
Service Activities	IEEE Student Member Reviewer for several peer-review academic conferences
Honors and Awards	Awarded Golden Jubilee Fellowship(2001) by IIT Kharagpur Alumni Foundation Awarded the Undergraduate Merit Scholarship by State Bank of India (2001-2005) Ranked 80 amongst 200,000 candidates appearing for the All India IIT-Joint Entrance Examination , 2001 Ranked among the top 10 teams in the KDD Cup 2008 Data mining competition.