ANOOP KUMAR

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CAREER OBJECTIVE

Leverage computer science experience along with software engineering skills to solve challenging problems

EXPERIENCE

Raytheon BBN Technologies, Cambridge MA
Scientist II and Technical Lead (May 2014 – Present)

- Manage a team of researchers and provide technical leadership on government and commercial projects in the areas of machine learning, natural language processing (NLP), and predictive analytics
- Lead and advise the development of a framework and a portal to foster research and collaboration among a community of researchers and consumers of NLP technologies
- Architect and manage software as a service (SaaS) and cloud-based solutions for speech recognition, natural language processing, and forecasting domains
- Participate in proposal writing and business development for government and commercial agencies

Scientist I (January 2011 – April 2014)

- Contribute to cutting edge research on DARPA and IARPA funded projects, take part in evaluations, develop research prototypes, and transition mature technologies
- Architect, implement, and manage an automatic speech recognition (ASR) software as a service (SaaS) system that processes more than 300 hours of audio per day
- Lead the development of election forecasting system by identifying key open source indicators in online news, social media, metadata in video-sharing sites, and search volume trends
- Manage the design, development, scaling, and transition of a system that runs NLP and information extraction on large volume of data to extract entities, relations, sentiment, and summarizes results

Tufts University, Medford MA
Information Systems Architect (July 2008 – December 2010)

- Manage the Tufts Digital Library project by developing a state of the art system to preserve and disseminate archival quality produced by the university
- Architect and implement Fedora Commons Repository system (Java Web Application based on Service Oriented Architecture) with Lucene based search and discovery engine
- Implement semantic web technologies such as RDF, RDF-S and OWL to support unstructured data and multiple metadata formats
- Direct the educational technologies development and systems team
- Provide technical leadership to the VUE (http://vue.tufts.edu) team and implement visualization techniques for large datasets
- Develop guidelines and best practices for software engineering in Academic Technology
- Chair of the architecture committee evaluating and implement the next generation learning management system

Technical Lead/Architect (July 2005 – June 2008)

- Provide technical leadership and guidance to the developers in developing educational applications for teaching, learning and research that leverage cutting edge technologies
- Guide AT developers and student developers in implementing the solutions
- Develop technical standards for AT's development activities and implementing best practice approaches to code management, release engineering, QA testing and documentation
- Lead developer on VUE Project (http://vue.tccs.tufts.edu) funded by Mellon Foundation
- Technical Lead and Architect on Tufts Digital Library Project

Academic Technologies Developer (June 2000 – June 2005)
- Manage and develop AT grant funded projects
- Supervise undergraduate and graduate student staff on technology and research projects.
- Work with Curricular Technology Group to develop educational applications that leverage technologies for teaching, learning and research
- Plan and develop programming and technological standards
- Work with Digital library groups at Tufts to architect a university wide scalable digital library system
- Analyze digital library systems and implement Fedora based architecture for Tufts Digital Library

Powerteam Consultant (Jan 1999 – May 2000)
- Develop web applications and sites using HTML, Perl, ASP, MS Access and MySQL Server
- Develop resources management and reporting system

Lokvani, Inc., MA (August 2001 – Present)
Co-Founder and Technical Director
- Work with the team to build the community portal Lokvani (http://www.lokvani.com/)
- Implement Linux, Apache, MySQL and PHP (LAMP) based website that hosts community directory, calendar, E-magazine and classifieds
- Manage the platform that supports more than 40,000 registered users and 1 million hits/month
- Optimize the website for search engines

Tufts University, Medford MA (Sept 1998- May 2000)
Teaching Assistant
- Develop laboratories and recitation for three courses
- Assist the instructor in preparing the lecture notes and the tests
- Grade student assignment and exams

Electronics Corporation of India Ltd. (ECIL), India (Jul 1998)
Summer Intern
- Obtain advanced training in Java
- Develop an application to track the training history and choose new training programs

Natco Pharma Ltd., India (May 1997 – July 1997)
Summer Intern
- Gain experience in several stages of pharmaceutical packaging and distribution
- Conceive a design to optimize the size of transportation batches

EDUCATION
TUFTS UNIVERSITY, Medford, MA (August 2010)
- Ph.D. in Computer Science
- Thesis: Augmented Training Methods for Hidden Markov Models for the Detection of Remote Protein Homologs
- Thesis Advisor: Prof. Lenore Cowen
- GPA: 3.97 (on scale of 4.0)

TUFTS UNIVERSITY, Medford, MA (May 2004)
- Master of Science in Computer Science
- Project : A study on structures of proteins in various superfamilies and families with TIM Barrel motif
- Project Advisor: Prof. Lenore Cowen
- GPA: 3.90 (on scale of 4.0)

INDIAN INSTITUTE OF TECHNOLOGY (IIT), Kharagpur, India (July 1998)
- Bachelor of Technology (Honors),
- Bachelor's thesis: Modeling of a Biological System Using Artificial Neural Networks
- Thesis Advisors: Prof. Rintu Banerjee and Prof. Amar Nath Samanta
- Ranked among the top **1%** of more than 200,000 students in national IIT entrance exam
- First Prize at Alchemy conference for paper titled 'Simulation Studies on Continuous Yeast Fermenter'
- GPA: 8.06 (on scale of 10.0)

PUBLICATIONS

A. Kumar, C. Stokes, F. Choi, R. Weischedel, Scaling NLP Algorithms to Meet High Demand, IEEE BigData 2015

A.Kumar and S. Miller, Forecasting Civil Unrest from Publicly Available Data, SocialCom 2015

A. Kumar, et al., An End-to-End System for Content-Based Video Retrieval using Behavior, Actions, and Appearance with Interactive Query Refinement, AVSS 2015

E. Boschee, M. Freedman, S. Khanwalkar, A. Kumar, A. Srivastava, R. Weischedel, Researching Persons & Organizations AWAKE: From Text to an Entity-Centric Knowledge Base, Special Session on Big Data Representation and Processing in Data Science, IEEE BigData 2014

A. Kumar, M. Gaurav, A. Srivastava, S. Miller, Geographic Bias in Twitter Based Election Forecasting, SocialCom 2014

M. Gaurav, A. Kumar, D. Stallard, A. Srivastava, S. Miller, Query Expansion to Search Politically Relevant Tweets, SocialCom 2014

A. Srivastava, S. Khanwalkar, A. Kumar, Application of discriminative models for interactive query refinement in video retrieval. In Sixth International Conference on Machine Vision, 2013

S. Khanwalkar, M. Seldin, A. Srivastava, A. Kumar, S. Colbath, Content-Based Geo-Location Detection for Placing Tweets Pertaining To Trending News on Map. In The Fourth International Workshop on Mining Ubiquitous and Social Environments, 2013

M. Gaurav, A. Srivastava, A. Kumar, S. Miller, Leveraging candidate popularity on Twitter to predict election outcome. In Proceedings of the 7th Workshop on Social Network Mining and Analysis, 2013

N. Daniels, A. Kumar, L. Cowen and M. Menke, Touring Protein Space with Matt IEEE/ACM Transactions on Computational Biology, Vol 9, Issue 1, 2012

C. Gao, G. Saikumar, S. Khanwalkar, A. Herscovici, A. Kumar, A . Srivastava, P. Natarajan, Online Speech Activity Detection in Broadcast News, INTERSPEECH 2011

A. Kumar and L. Cowen. Recognition of Beta-Structural Motifs Using Hidden Markov Models Trained with Simulated Evolution, ISMB 2010

N. Daniels, A. Kumar, L. Cowen, M. Menke. Touring Protein Space with Matt, ISBRA 2010

A. Kumar and L. Cowen. Augmented Training of Hidden Markov Models to Recognize Remote Homologs via Simulated Evolution. Bioinformatics, 25(13):1602-1608, 2009

A. Kumar and N. Schwertner: Building Personal Collections and Networks of Digital Objects in a Fedora Repository Using VUE, Open Repositories Conference 2008

R. Chavez, A. Kumar, N. Schwertner: Adventures in architecting and implementing digital repository services: a case study of the Tufts digital repository, Open Repositories Conference 2007

A. Kumar, J. S.Buell, L. J. Cowen, I. Peter: NUDLE: A Tool for Inferring Nutrient Disease Relationships from Metabolic Networks, ISMB 2006

A. Kumar, R. Saigal, Visual understanding environment. JCDL 2005: 413

D. Scanlon, A. Kumar, W. Zhou, A. Blumer, K. Wollenburg, L. Cowen: Probabilistic Discovery of Regulatory Networks in the IDC of *Plasmodium falciparum,* CAMDA 2004

A. Kumar, R. Saigal, R. Chavez, N. Schwertner: Architecting an extensible digital repository. JCDL 2004: 2-10

D. Kahle, A. Kumar, R. Saigal: Visual Understanding Environment Syllabus fall 2003

ACTIVITIES AND INTERESTS

Member, Association of Computing Machinery

Vice- President, IIT Society in New England (Jan 2001 – November 2004)

President & Co-Founder, Indian Society At Tufts, Tufts University (May 99 – May 2000)

President & Co-Founder,   Technology Chess Association, IIT-Kharagpur