Raman Chandrasekar

5751 Kirkwood Pl N
Seattle, WA 98103 USA
Home: +1 (206) 525-5036
Cell: +1 (425) 890-5751
raman.chandrasekar@outlook.com

Education

Ph.D. (Computer Science), Tata Institute of Fundamental Research,
and the University of Bombay, Mumbai.
M.S. (Physics), Indian Institute of Technology (IIT), Delhi.

Main Areas of Research Interest

Language understanding, information retrieval, text mining, linguistic techniques for improved information filtering, human computer interfaces. In particular: mining information from large search logs, domain-specific search, topical news following and filtering, news exploration and personalization, human computation, search relevance and user interaction satisfaction.

Employment

Sep 2017 – Northeastern University, Seattle Campus
Sep 2022 -- Senior Principal Research Scientist, Institute for Experiential AI
Aug 2019 – Sep 2022 Clinical Professor, Khoury College
Sep 2017 – May 2019 Part-time Lecturer, Khoury College
Teaching graduate courses including Foundations of Artificial Intelligence, Information Retrieval, Deep Learning, and Advanced Software Development. Conducting research at the intersection of natural language processing, information retrieval, and machine learning.

April 2015 – Co-owner, **KJ Consulting,** Seattle
Consultancy in areas such as text classification, special purpose search, and learning from mobile sensor data.

June 2012 – April 2015: ProQuest Workflow Solutions (now **Ex Libris**), Seattle
April 2014 – April 2015: Senior Software Engineering Manager;
June 2012 – April 2014: Software Architect Lead

Built and managed a high-performing, experienced, agile software development group for a Solr/Lucene-based web-scale discovery product. This product, in use at over seven hundred libraries worldwide, offers full-text and catalog search over several billion items in over seventeen languages. From April 2014 on, also managed development teams on other discovery and linking products; later, also managed program managers and a QA team. Helped plan and schedule work and defined broad thrust areas as well as specifics of features; investigated issues; created prototypes; improved processes. Managed feature-releases in a large, distributed environment, including significant in-place upgrades to Solr/Lucene and Cassandra systems, and transitioning the main product to the cloud. Represented these products at relevant industry meetings.

Oct 2010 – June 2012: Applied Scientist, **Evri**, Seattle
Evri (funded by Paul Allen's Vulcan Capital) was a topical news-following engine start-up, delivering popular and trending streams of news via mobile applications. Developed and deployed search, language processing, and machine learning methods in areas including core-content detection in web pages, improved large-scale ontology creation, entity disambiguation, and improving relevance. Prototyped an entity-based news retrieval component.

Sep. 1998 – Oct. 2010: Researcher, **Microsoft/Microsoft Research**, Redmond
(including a six-month stint at Microsoft Research Asia, Beijing)

- Jan 2008 – Oct 2010: Designed and developed ideas and prototypes for topical search using query context models, peer-to-peer human computation, news tracking and exploration. Mentored interns. Text Mining, Search & Navigation Group (now the Machine Learning & Intelligence Group) Microsoft Research.
- June 2007 – Dec 2007: Worked on topical search using result re-ranking, and on search user experience satisfaction. Microsoft Research Asia, Beijing.
- Sept. 2005 – May 2007: Worked on incubation for adaptive news dissemination. Designed and architected the system, developed parts of it, managed developers, and evangelized the system. Deployed and evaluated a prototype with several hundred users. Microsoft Research.
- July 2004 – Aug 2005: Architected and released multiple versions of a text mining tool used by several groups within Microsoft. Managed the team developing the system and evangelized text mining within Microsoft. Speech & Natural Language Group.
- April 2002 – July 2004: Innovated clustering tools for task identification. Invented a method to create topic-specific search engines using generic search engines and prototyped a version. Authored white papers on customer content contributions and text mining. Natural User Interface Group.
- Sep 1998 – April 2002: Conceptualized, prototyped, and added to MSN Search features such as explicit query refinement ('Popular Search Topics') and query federation. Developed tools for query log analysis, query clustering, and concept store augmentation. MSN Web Search.

1995 - 1998: Visiting Scholar, **University of Pennsylvania**, Philadelphia, PA.
Institute for Research in Cognitive Science; Center for the Advanced Study of India
Applied linguistic techniques to improve web search, automatically simplifying complex English to simpler text that is syntactically correct, as well as integrating retrieval and browsing to improve information access.

1982 - 1998: Various posts culminating in Research Scientist,
National Centre for Software Technology &
Tata Institute of Fundamental Research, Mumbai.
Conducted and managed research, taught, and consulted in the areas of knowledge-based systems, information retrieval, machine translation and resource scheduling.

Other Visiting Positions

- Researcher, joint project between AT&T Labs Research and the University of Pennsylvania on exploratory data analysis (data mining) of AT&T subscriber churn, Oct. 1996 – Sep. 1997.
- Visiting Scholar, University of Pennsylvania, Philadelphia, Sep. – Dec. 1994.
- Visiting Researcher, Center for Machine Translation, Carnegie Mellon University, Pittsburgh, May – Oct. 1991.

Selected Publications

Books/Edited Proceedings

- Chandrasekar R, Chi E, Chickering M, Ipeirotis PG, Mason W, Provost F, Tam J, von Ahn L (Eds). HCOMP 2010: Proceedings of the ACM SIGKDD Workshop on Human Computation, ACM, July 2010.
- Bennett P, Chandrasekar R, Chickering M, Ipeirotis PG, Law E, Mityagin A, Provost F, von Ahn L (Eds). HCOMP 2009: Proceedings of the ACM SIGKDD Workshop on Human Computation, ACM, June 2009.
- Sasikumar M, Muthu Raman S, Ramani S, Anjaneyulu KSR, and Chandrasekar R. *Rule Based Expert Systems: A Practical Introduction*. Narosa Publishing House, India, and Addison-Wesley, Singapore, 1993.
- Ramani S, Chandrasekar R, and Anjaneyulu KSR (Eds). Knowledge Based Computing: Reports from the Indian KBCS Project, NCST, 1993.
- Ramani S, Chandrasekar R, and Anjaneyulu KSR (Eds). Knowledge Based Computer Systems: Proceedings of Knowledge Based Computer Systems: KBCS '89, Bombay, Narosa Publishing House, India, 1989. Also published as Vol. 444, Lecture Notes in Computer Science, Springer-Verlag, Berlin, 1990.
- Sadanandan P and Chandrasekar R (Eds). Information Technology for Development: Proc. CSI-87, Tata McGraw-Hill, New Delhi, February 1987.

Journal publications / Book Chapters / Encyclopedia Articles

- Church KW, Chandrasekar R. Emerging trends: Risks 3.0 and proliferation of spyware to 50,000 cell phones. Natural Language Engineering. 2023;29(3):824-841.
- Church K, Schoene A, Ortega JE, Chandrasekar R, Kordoni V. Emerging trends: Unfair, biased, addictive, dangerous, deadly, and insanely profitable. Natural Language Engineering. 2023;29(2):483-508.
- Chandrasekar R. Elementary? Question Answering, IBM's Watson, and the Jeopardy! Challenge, Resonance, Journal of Science Education, Vol. 19 (3), March 2014, pp. 222-241.
- Diamond T, Price S and Chandrasekar R. Actions Speak Louder than Words: Analyzing Large-scale Query Logs to Improve the Research Experience, The Code4Lib Journal, Issue 21, 2013-07-15.
- Chandrasekar R. How Children Learn to Use Language: An Overview of R Narasimhan's Ideas on Child Language Acquisition, Resonance, Journal of Science Education, Vol. 13 (5), May 2008, pp. 430-439.
- Chandrasekar R and Srinivas B. Glean: Using Syntactic Information in Document Filtering. Encyclopedia of Library and Information Science, Allen Kent, and James G Williams (Eds.), Vol. 71, Supplement 34, 2002. Also in Vol. 28, Supplement 7, Encyclopedia of Microcomputers, Marcel Dekker Inc. An earlier version of this was published in Information Processing & Management, Vol. 34, No. 5, September 1998, pp. 623-640.
- Chandrasekar R and Srinivas B. Automatic Induction of Rules for Text Simplification. Knowledge-Based Systems, Vol. 10, 1997, pp. 183-190. An earlier version of this paper was published in KBCS '96.

Conference/Workshop Publications

- Chadda A, Song K, Chandrasekar R, Gorton I. Engineering an Intelligent Essay Scoring and Feedback System: An Experience Report, 2021 IEEE/ACM 1st Workshop on AI Engineering - Software Engineering for AI (WAIN), 2021, pp. 141-144, doi: 10.1109/WAIN52551.2021.00029.

Web Search /User Experience

- Sondhi P and Chandrasekar R. Domain Specific Entity and Relationship Extraction from Query Logs. Proc. ASIST 2010, Oct 2010, Pittsburgh, PA, USA. [Poster]

- Sondhi P, Chandrasekar R, Rounthwaite R. Using Query Context Models To Construct Topical Search Engines. Pro. Information Interaction in Context 2010 (IIiX 2010), New Brunswick, NJ, USA, Aug 2010, pp. 75-84. [Paper]
- White RW and Chandrasekar R. Exploring the Use of Labels to Shortcut Search Trails. Proc. 33rd Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2010), Geneva, Switzerland, July 2010, pp. 811-812. [Poster]
- Chandrasekar R, Scott MR, Slawson D, Rajan ARD, and Makoski D. Measuring Search Experience Satisfaction using Explicit Context-Aware Feedback. Proc. HCIR-2008, Redmond, WA, USA, Oct 2008. [Paper]
- Paek T and Chandrasekar R. 2005. Windows as a Second Language: An Overview of the Jargon Project. Proc. First International Conference on Augmented Cognition 2005, Las Vegas, NV, July 2005. [Paper]
- Chandrasekar R, Chen H, Corston-Oliver S, and Brill E. 2004. Subwebs for Specialized Search. Proc. 27th Annual International ACM SIGIR Conference on Research and Development Information Retrieval, Sheffield, UK, July 2004. SIGIR '04. ACM, New York, NY, pp. 480-481. [Poster]
- Dziadosz S and Chandrasekar R. 2002. Do Thumbnail Previews Help Users Make Better Relevance Decisions about Web Search Results? Proc. 25th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval, Tampere, Finland, Aug 2002. SIGIR '02. ACM, New York, NY, pp. 365-366. [Poster]
- Chandrasekar R. 2002. Evaluating the "Finding" Experience: Test the Process, Not the Result. WWW 2002 Panel on "Web Experiments and Test Collections: Are They Meaningful", Honolulu, HI, May 2002. [Invited Panel presentation]

News Exploration

- Vydiswaran VGV, van den Eijkhof J, Chandrasekar R, Paradiso A and St. George J. News Sync: Enabling Scenario-based News Exploration. Proc. ASIST 2011, New Orleans, Oct 2011. [Paper]
- Vydiswaran VGV and Chandrasekar R. Improving the Online News Experience. Proc. HCIR 2010, New Brunswick, NJ, Aug 2010. [Position Paper]
- Vydiswaran VGV, van den Eijkhof J, Chandrasekar R, Paradiso A and St. George J. News Sync: Three Reasons to Visualize News Better. Proc. HCIR 2010, New Brunswick, NJ, Aug 2010. [Challenge Report]

Human Computation

- Ipeirotis PG, Chandrasekar R, and Bennett P. A Report on the Human Computation Workshop (HCOMP 2009). SIGKDD Explorations 11, 2, May 2010, pp. 80-83.
- Chandrasekar R and Jain K. Peer-to-Peer Human Computation & "Help Me Decide": Enabling Search Users to Help Other Users Make Purchase Decisions. Proc. WebSci10: Extending the Frontiers of Society On-Line, Raleigh, NC, April 2010. [Paper]
- Ma H, Chandrasekar R, Quirk C, and Gupta A. Improving Search Engines Using Human Computation Games. Proc. 18th ACM Conference on Information and Knowledge Management (CIKM '09), Hong Kong, China, Nov 2009. ACM, New York, NY, pp. 275-284. [Paper]
- Ma H, Chandrasekar R, Quirk C, and Gupta A. Page Hunt: Improving Search Engines Using Human Computation Games. Proc. 32nd International ACM SIGIR Conference on Research and Development in Information Retrieval, Boston, MA, July 2009. SIGIR '09. ACM, New York, NY, pp. 746-747. [Poster]
- Ma H, Chandrasekar R, Quirk C, and Gupta A. Page Hunt: Using Human Computation Games to Improve Web Search. Proc. ACM SIGKDD Workshop on Human Computation, Paris, France, June 2009. HCOMP '09. ACM, New York, NY, pp. 27-28. [Demo]

Information Retrieval/Document Filtering

- Chandrasekar R and Srinivas B. Using Supertags in Document Filtering: The Effect of Increased Context on Information Retrieval Effectiveness. Proc. Recent Advances in NLP '97, RANLP'97, Tzigov Chark, Bulgaria, Sep 1997. [Paper]

- Chandrasekar R and Srinivas B. Using Syntactic Information in Document Filtering: A Comparative Study of Part-of-speech Tagging and Supertagging. Proc. RIAO'97, Montreal, June 1997, pp. 531-545. [Paper]
- Chandrasekar R and Srinivas B. Gleaning information from the Web: Using Syntax to Filter out Irrelevant Information. AAAI Spring Symposium on Natural Language Processing for the World Wide Web, Stanford University, CA, March '97. [Paper]

Automatic Text Simplification

- Chandrasekar R and Srinivas B. Automatic Induction of Rules for Text Simplification. Proc. KBCS '96, Mumbai, December 1996. [Paper]
- Chandrasekar R, Doran C, and Srinivas B. Motivations and Methods for Text Simplification. Proc. COLING-96, Copenhagen, Denmark, pp. 1041-1044, 1996

Issued Patents

US Patent #	Title
11,170,295	Systems and methods for training a personalized machine learning model for fall detection
9,177,045	Topical search engines and query context models
8,655,667	Context based online advertising
8,326,630	Context based online advertising
8,285,706	Using a human computation game to improve search engine performance
8,191,004	User feedback correlated to specific user interface or application features
8,171,007	Creating business value by embedding domain tuned search on websites
8,086,591	Combining domain-tuned search systems
7,849,079	Temporal ranking of search results
7,756,864	System and method for performing a search and a browse on a query
7,685,199	Presenting information related to topics extracted from event classes
7,577,718	Adaptive dissemination of personalized and contextually relevant information
7,519,590	Method and system for performing phrase/word clustering and cluster merging
7,483,885	System and method for query refinement to enable improved searching based on identifying and utilizing popular concepts related to users' queries
7,426,497	Method and apparatus for analysis and decomposition of classifier data anomalies
7,392,278	Building and using subwebs for focused search
7,296,019	System and methods for providing runtime spelling analysis and correction
7,287,012	Machine-learned approach to determining document relevance for search over large electronic collections of documents
7,136,845	System and method for query refinement to enable improved searching based on Identifying and utilizing popular concepts related to users' queries
7,076,731	Spelling correction system and method for phrasal strings using dictionary looping
6,978,264	System and method for performing a search and a browse on a query
6,578,032	Method and system for performing phrase/word clustering and cluster merging

Professional Activities

- Editor, ACM SIGIR Forum, 2010 – 2014.
- Editor, ACM SIG-IRList, 2003 – 2009.
- National Science Foundation (NSF) Panel member (three years) in the Information & Intelligent Systems (IIS) Division.
- Founding editor, *Vivek, an Indian Quarterly on AI*; Associate Editor of *Vivek* until 1998, Editorial Board member for several years.
- Reviewer: ACM Transactions on Information Systems (TOIS); ACM Transactions on Computer Human Interaction (TOCHI); Machine Translation; Computational Linguistics; Computer Science & Informatics.

- Member Program Committee (typically for several years): International Joint Conferences on Artificial Intelligence (IJCAI); the International Conference on Computational Linguistics (COLING); Foundations of Software Technology & Theoretical Computer Science (FST&TCS); Knowledge Based Computer Systems (KBCS); Special Interest Group on Information Retrieval (SIGIR); World Wide Web (WWW); Conference on Information and Knowledge Management (CIKM); Knowledge Discovery in Databases (KDD); ADKDD and others.
- Member, Organizing Committee & Program Committee, Human Computation 2010 and Human Computation 2009, ACM-KDD Workshops; Member, Program Committee, Human Computation 2011.
- Reviewer, project proposals for the Dept. of Science and Technology, Government of India.
- Reviewer, book proposals for Morgan Kaufmann, Tata McGraw-Hill, and Prentice Hall of India.
- Member, ACM, ACM SIGIR and SIGKDD.

Teaching & Related Experience

- Teaching graduate courses on Foundations of Artificial Intelligence (FAI), and Information Retrieval as a part-time lecturer at Northeastern University, Seattle campus, since Sep 2017.
- Developing an online course on Foundations of Artificial Intelligence, Northeastern University.
- Occasional Guest Lecturer, University of Washington, Information School, Seattle, WA [2001-2009].
- Mentored several graduate-level interns including computer science PhD candidates and interaction design students.
- Taught graduate level courses at the National Centre for Software Technology, India, and at other sites, including on Artificial Intelligence Programming; Artificial Intelligence in Industry; Expert Systems; Information Retrieval & Applications; Knowledge Representation; Natural Language Understanding; Software Engineering; Software Project Management.
- Supervised, and served on the committees for Bachelors' and Masters' theses at the Indian Institutes of Technology, Mumbai and Chennai, and the University of Mumbai (Bombay).

  In addition, I have delivered talks at several universities, companies, workshops, and symposia.

Volunteer Experience

- Volunteer Event Photographer, 2011 –
  Took pictures at special events for non-profits such as College Access Now http://www.collegeaccessnow.org/ , GambiaHelp http://gambiahelp.org/ , and Literacy Source http://www.literacysource.org/ for use in their communications and publicity material.
- Mentor/Tutor, VIBES, Bellevue School District, 2001 – 2007
  Worked with elementary school children at Clyde Hill Elementary School in the Bellevue School District, as a VIBES (Volunteers in Bellevue's Education System) volunteer. I worked as a one-on-one mentor, or as a tutor for small groups, helping with reading, math, etc., for one hour a week, for over six school years.
- Board Member, Ragamala, Seattle
  Ragamala, an organization based in Seattle, aims to foster understanding and appreciation of South Asian performing arts. I helped plan and organize concerts, dances etc. as a volunteer, for several years until about 2006.
- Volunteer, CRY (Child Relief and You), Seattle, 1999 – 2001
  CRY (Child Relief and You) is an organization focused on child rights, with projects in India and the US. I helped with planning and executing fund-raising events.