

Vikas S. Bhardwaj

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About

Applied Research professional with 8+ years of experience in developing Machine Learning solutions for Information Extraction, Natural Language Understanding and Personalization

Education

Columbia University

M.S. - Computer Science - GPA: 3.85/4.0

New York, NY

Graduated: Dec 2010

University of Wisconsin - Milwaukee

B.S. - Computer Science - GPA: 3.97/4.0

Milwaukee, WI

Graduated: May 2009

Experience

Amazon.com

Sr. Manager, Machine Learning - Customer Engagement Technology

Seattle, WA

Apr 2019 - Present

Manager III, Machine Learning - Customer Service Technology

Oct 2016 - Mar 2019

Manager II, Machine Learning - Customer Service Technology

June 2014 - Sep 2016

Leading a team of applied scientists and software engineers on building NLU based customer service systems. Products involve interactive dialogue systems, automated contact routing and personalized search. Responsibilities include - Hiring and developing researchers; Owning the strategic planning and project management; Analyzing customer data and addressing customer pain points; and staying up-to-date with trends, papers, and academia.

Applied Scientist II - Customer Engagement Technology

Dec 2012 - June 2014

Developed personalized ML powered solutions for Amazon customers in the Customer Service space. Built and productized ML solutions for customer intent detection using both explicit customer inputs and customer behavior data.

Thomson Reuters

Research Software Engineer - News Technology

New York, NY

Jan 2011 - Dec 2012

Software Engineering Intern (Research) - News Technology

May 2010 - Dec 2010

Lead researcher on an analytics and product team working on information extraction, resolution, recommender systems and inference engines. Responsible for designing and implementing data driven algorithms for real time information extraction in the financial domain and identifying relationships between various entities and events in news.

Center for Computational Learning Systems - Columbia University

Graduate Research Assistant with Dr. Rebecca Passonneau

New York, NY

Sep 2009 - May 2010

Research involved studying anomalies with annotation agreements. Developed a statistical annotation agreement analysis toolset called "Anveshan", which was published at ACL. Also, part of a team working on the Manually Annotated Sub-Corpus (MASC) project of the American National Corpus. Responsibilities include doing feature extraction from sentences and writing data mining algorithms to investigate reasons for word-sense variation among multiple annotators.

Selected Publications ([Google Scholar Link](#))

- Yichao Lu, Manisha Srivastava, Jared Kramer, Heba Elfardy, Andrea Kahn, Song Wang and **Vikas Bhardwaj** "[Goal-Oriented End-to-End Chatbots with Profile Features in a Real-World Setting](#)", Proceedings of the NAACL-HLT 2019.
- Yichao Lu, Phillip Keung, Faisal Ladhak, **Vikas Bhardwaj**, Shaonan Zhang, Jason Sun "[A neural interlingua for multilingual machine translation](#)", Proceedings of the Third Conference on Machine Translation (WMT) (2018)
- Yichao Lu, Phillip Keung, Shaonan Zhang, Jason Sun, **Vikas Bhardwaj** "[A practical approach to dialogue response generation in closed domains](#)", [CoRRabs/1703.09439](#) (2017)
- Passonneau, Rebecca J.; **Bhardwaj, Vikas**; Salleb-Aouissi, Ansaf; Ide, Nancy, "[Multiplicity and Word Sense: A Case for a Probabilistic Representation of Word Sense based on Annotation Results](#)", Language Resources and Evaluation Journal, Volume 46, 2012
- Malik, Hassan; **Bhardwaj, Vikas**, "[Automatic Training Data Cleaning for Text Classification](#)", Proceedings of 2011 Workshop on Domain Driven Data Mining (ICDM 2011), Vancouver, Canada
- Malik, Hassan; **Bhardwaj, Vikas**; Fiorletta, Huascar, "[Accurate Information Extraction for Quantitative Financial Events](#)", *Proceedings of the 20th ACM Conference on Information and Knowledge Management (CIKM 2011)*, Glasgow, UK.
- **Bhardwaj, Vikas**; Passonneau, Rebecca; Salleb-Aouissi, Ansaf; Ide, Nancy. 2010. "[Anveshan: A framework for analysis of multiple annotators' labeling behavior](#)". *Proceedings of the Fourth Linguistic Annotation Workshop (LAW IV '10)*. Association for Computational Linguistics, Stroudsburg, PA, USA, 47-55.
- Passonneau, Rebecca J.; Salleb-Aouissi, Ansaf; **Bhardwaj, Vikas**; Ide, Nancy. 2010. "[Word Sense Annotation of Polysemous Words by Multiple Annotators](#)". *Proceedings of the Seventh International Conference on Language Resources and Evaluation (LREC)*. May 19-21, 2010. Valleta, Malta.
- **Bhardwaj, Vikas**; Devarajan, Ramaswamy. 2010 "[Probabilistic User Modeling in the Presence of Drifting Concepts](#)", *Advances in Knowledge Discovery and Data Mining*, LNAI 6118, pp. 328-339, Springer-Verlag Berlin Heidelberg 2010

Patents

- [Navigable graph of connections between services](#), US Patent - US20180268467A1
- [Language based Solution Agent](#) US Patent - 10013416
- [Representing Information from Documents](#), US Patent - US20120278336

Awards and Achievements

- Reviewer for the Amazon Machine Learning Conference - 2014 - 2017
- Winner at multiple Amazon hackathons and at Startup Weekend
- Awarded Graduate Research Assistantship with Full Tuition Waiver at Columbia - 2009,2010
- Received the Outstanding Undergraduate Student Award from UWM-CEAS - 2009
- Selected for the Dean's Honor List at UWM for excellent academic performance - 2008, 2009

Immigration Status

Working in the US on H1-B with an approved EB-2 I-140 (priority date - Nov 2013)