

Vikas S. Bhardwaj

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About

Applied Research professional with 10+ years of experience in developing Machine Learning solutions for Information Extraction, Natural Language Understanding and Personalization

Work Experience

Facebook Inc

Engineering Manager, Facebook Assistant

Redmond, WA

Feb 2020 – Present

Leading engineering and machine learning teams in the Facebook Assistant organization building state-of-the-art natural language understanding technologies for Facebook's AR/VR products.

Amazon

Sr. Manager, Machine Learning - Customer Engagement Technology

Seattle, WA

Apr 2019 – Feb 2020

Manager III, Machine Learning - Customer Engagement Technology

Oct 2016 – Mar 2019

Manager II, Machine Learning - Customer Engagement Technology

June 2014 – Sep 2016

Applied ML Scientist II - Customer Engagement Technology

Dec 2012 – June 2014

Lead a 50+ team of machine learning scientists, software engineers and business analysts to build state-of-the-art conversational systems for Amazon's customer service. Products involve - interactive dialogue systems, automated contact routing and personalized search. Responsibilities include - Hiring and developing researchers; Strategic planning and project management; Leading and promoting academic research. My group's research is [patented](#), [commercialized](#), and is automating millions of customer service issues worldwide.

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, and recommender systems. Responsible for designing and implementing ML systems for real-time low latency fact 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

NSF Funded Research on 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.

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

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

- Phillip Keung, Yichao Lu, and **Vikas Bhardwaj** "[Adversarial Learning with Contextual Embeddings for Zero-resource Cross-lingual Classification and NER](#)", Empirical Methods in Natural Language Processing (EMNLP 2019), Hong Kong
- 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. Valletta, 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-1 I-140 (AOS processing)