

# Ashim Gupta

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## CONTACT INFORMATION

335 South 700 East,  
Salt Lake City, UT 84102  
United States of America

[ashim95.github.io](https://github.com/ashim95)  
[ashimgupta95@gmail.com](mailto:ashimgupta95@gmail.com)  
[Google Scholar](#)  
+1-385-500-7363

## RESEARCH INTERESTS

Analysis and Explainability of NLP Models, Logic and Neural Networks, Machine Translation, Sanskrit Computational Linguistics, Low-resource Multi-lingual NLP

## CURRENT POSITION

**School of Computing, University of Utah**

Graduate Research Assistant  
Advisor: Prof. Vivek Srikumar

**Aug 2019 - Present**

## EDUCATION

**School of Computing, University of Utah**

PhD, Computer Science (CGPA: 3.97/4)  
Advisor: Prof. Vivek Srikumar

**Aug 2019 - Present**

**Indian Institute of Technology - BHU**

B.Tech, Electrical Engineering (CGPA: 8.27/10)

**July 2012 - May 2016**

## RESEARCH EXPERIENCE

**Computer Science Department, IIT - Kharagpur**

*Project Officer, NLP Researcher*

*Advisors* : Prof. Sudeshna Sarkar, Prof. Pawan Goyal

**June 2017 - March 2019**

## ENGINEERING EXPERIENCE

**Proptiger.com, Gurgaon, India**

*Software Engineer (Grade 3)*

**August, 2016 - April, 2017**

## PUBLICATIONS

Krishna A., **Gupta A.**, Goyal P., Santra B., Satuluri P., *A Graph Based Framework for Structured Prediction Tasks in Sanskrit*, ACL - Computational Linguistics Journal (Accepted for December 2020 Issue) [[Paper](#)]

Krishna A., **Gupta A.**, Garasangi D., Satuluri P., Goyal P., *Keep It Surprisingly Simple: A Simple First Order Graph Based Parsing Model for Joint Morphosyntactic Parsing in Sanskrit*, EMNLP 2020 [[Paper](#)]

**Gupta A.**, Krishna A., Goyal P., Hellwig O., *Evaluating Neural Morphological Taggers for Sanskrit*, SIGMORPHON - ACL 2020 [[Paper](#)]

Krishna A., **Gupta A.**, Garasangi D., Sandhan J., Satuluri P., Goyal P., *Neural Approaches for Data Driven Dependency Parsing in Sanskrit*, Technical Report [[Preprint](#)]

**Gupta A.**, Goyal P., Sarkar S., *Fully Contextualized Biomedical Named Entity Recognition*. 41st European Conference on Information Retrieval(ECIR), 2019 [[Paper](#)]

Pramanick M, **Gupta A.**, Mitra P. *An LSTM-CRF Based Approach to Token-Level Metaphor Detection*. FigLang Workshop at NAACL, 2018 [[Paper](#)]

Singh VP., **Gupta A.**, Singh S., Srivastava R. *An Efficient Content Based Image Retrieval System for Normal and Abnormal Mammograms*. IEEE UPCON'15, IIIT Allahabad [[Paper](#)]

## SELECTED PAST PROJECTS

**Machine Translation for low-resource Indian languages (IIT Kgp)**: An unsupervised Phrase-based machine translation system with initial phrase table induction using a bilingual lexicon and iterative back-translation. Exploiting the use of an NMT initialized with synthetic data from PB-SMT. BLEU Score of 7.0. (FairSeq, PyTorch, Moses MT)

**Multi-Task learning for Sanskrit morphological tagging and lemma prediction** (IIT Kgp): A deep multi-task architecture for tagging different morphological categories and lemma prediction for a free word order language like Sanskrit. Initial results suggest the superiority of such a model. (PyTorch)

**Medical Scientific Text Classification using Hierarchical Neural Networks** (IIT Kgp, 2018): A Hierarchical Bi-directional LSTM based system with attention for classification of PubMed abstracts along with a modification of CRF to incorporate sequence tagging information. Results superior to state-of-the-art method by 0.4 % on RCT 20k, 200k datasets (Tensorflow)

**Multi-Sensor Data Fusion Using Kalman Filter** (IIT BHU, 2015-2016): A robust Kalman Filter algorithm to fuse data from a low-cost IMU with GPS in order to reduce the error in estimation of object position. (MATLAB)

ACHIEVEMENTS AND AWARDS	<ul style="list-style-type: none"> <li>• Cleared the highly prestigious <b>IIT-JEE (2012)</b>, and was placed among the top 0.5% from about half a million students</li> <li>• Offered a SHE scholarship under Innovation in Science Pursuit for Inspired Research.</li> <li>• District and School topper in class 12th Board examination conducted by CBSE.</li> <li>• Online Courses : Machine Learning by Stanford University, Introduction to Computer Vision by Georgia Tech., Introduction to Natural Language Processing by Stanford University.</li> </ul>	
VOLUNTEER TEACHING EXPERIENCE	<b>Vindhya Gyan Public School</b> , Mirzapur (near Varanasi)	<b>July, 2014 - May, 2016</b>
	<ul style="list-style-type: none"> <li>• Taught and mentored students with non-English background from grade 6 to grade 12 on Saturdays, taught programming to students from grade 10 to grade 12.</li> <li>• Organized various group and team-building activities on Sundays.</li> </ul>	
SKILL SET	<ul style="list-style-type: none"> <li>• Programming Languages: Python (PyTorch, Tensorflow, FairSeq); Java; C++; MATLAB</li> <li>• Technologies and Platforms: Linux, Git, MySql, Maven, Spring; Apache Solr, Redshift, L<sup>A</sup>T<sub>E</sub>X</li> </ul>	