

# Ashim Gupta

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## CONTACT INFORMATION

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## 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)

**Jul 2012 - May 2016**

## RESEARCH EXPERIENCE

**Computer Science Department, IIT - Kharagpur**

*Project Officer, NLP Researcher*

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

**Jun 2017 - Mar 2019**

## ENGINEERING EXPERIENCE

**Proptiger.com, Gurgaon, India**

*Software Engineer (Grade 3)*

**Aug 2016 - Apr 2017**

## TEACHING EXPERIENCE

**University of Utah**

*Teaching Mentee,  
Introduction to Machine Learning*

**Aug 2020 - Present**

## PUBLICATIONS

**Gupta A.**, Kvernadze G., Srikumar V., *BERT & Family Eat Word Salad: Experiments with Text Understanding*, 35th AAAI Conference on Artificial Intelligence, 2021 [[Preprint](#)]

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. Our method yields state-of-the-art results among all the neural models. (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

- Cleared the highly prestigious **IIT-JEE (2012)**, and was placed among the top 0.5% from about half a million students
- Offered a SHE scholarship under Innovation in Science Pursuit for Inspired Research.
- District and School topper in class 12th Board examination conducted by CBSE.
- Online Courses : Machine Learning by Stanford University, Introduction to Computer Vision by Georgia Tech., Introduction to Natural Language Processing by Stanford University.

VOLUNTEER  
TEACHING  
EXPERIENCE

**Vindhya Gyan Public School**, Mirzapur (near Varanasi)

**Jul 2014 - May 2016**

- Taught English 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.
- Organized various group and team-building activities on Sundays.

SKILL SET

- Programming Languages: Python (PyTorch, Tensorflow, FairSeq); Java; C++; MATLAB
- Technologies and Platforms: Linux, Git, MySql, Maven, Spring; Apache Solr, Redshift, L<sup>A</sup>T<sub>E</sub>X