

# Sunil Sahu

*Bio Data*

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## Research Interests

Natural Language Processing, Machine Learning, Deep Learning.

## Education

- 2013-2017 **PhD (Computer Science and Engineering)**, Department of Computer Science and Engineering, Indian Institute of Technology Guwahati, Assam, India.
- 2011-2013 **MTech (Computer Science)**, School of Computer and Information Science, University of Hyderabad, Hyderabad, Andhra Pradesh, India.
- 2005-2009 **BE (Computer Science and Engineering)**, Department of Computer Science and Engineering, Guru Ghasidash Vishwavidyalaya Bilaspur, Chhattisgarh, India.

## Professional Experiences

- March-2019 to Present **Researcher**, Inception Institute of Artificial Intelligence, Abu Dhabi, UAE, Project: Factoid Question Answering.
- Oct-2017 to March 2019 **Postdoctoral Researcher**, National Centre for Text Mining, The University of Manchester, Manchester, UK, Project: Cross-sentence relation extraction using deep neural network.
- Aug-2013 to Sep-2017 **Graduate Student Researcher**, Machine Learning and Data Mining, Indian Institute of Technology, Guwahati, Assam, India, My research focuses on information extraction from unstructured text.
- July-Oct.2016 **Research Intern**, Graph and Text Analytics Group, Xerox Research Center India, Bangalore, Karnataka, India, Project: Phrase embedding for biomedical text using deep learning techniques.
- Feb-Apr.2016 **Research Intern**, Text Mining and Analytics Group, GVKBioscience Private Limited, Hyderabad, Telangana, India, Project: Relation extraction from clinical texts using domain invariant convolutional neural network.
- June-July.2008 **Engineering Intern**, Software Engineering Team, Orbit Technology, Hyderabad, Andhra Pradesh, India, .
- June-July.2007 **Engineering Intern**, Information Technology Department, Bharat Aluminium Company Ltd. (BALCO), Korba, Chhattisgarh, India, .

## Teaching Experiences

- 2017 **Deep Learning Techniques and its Applications**, Course Instructor, NIT Raipur, India, A short term course.
- 2016 **Intelligent Systems and Interfaces**, Teaching Assistant, IIT Guwahati.

2013 **Natural Language Processing**, *Teaching Assistant*, University of Hyderabad.

2012 **Data Mining**, *Teaching Assistant*, University of Hyderabad.

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## Technical Skills

Python, C, C++, Java, tensorflow, theano, scikit-learn, NLTK, CoreNLP, OpenNLP, MySQL, BANNER, LingPipe, UMLS, Metamap.

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## Awards and Honors

2 Sep 2018 **Our team achieved 3rd rank in n2c2 shared task 2018 track 2.**

6-12 Aug 2016 **Selected for the grant to attend ACL-2016 Conference from Google Research, Microsoft Research India and ACM-India/IARCS .**

2013-17 **MHRD fellowship to do PhD.**

2011-13 **MHRD fellowship to do MTech.**

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## Publications

- J1 **Adverse Drug Events and Medication Relation Extraction in EHRs with Ensemble Deep Learning Methods**, *Fenia Christopoulou, Thy Thy Tran, Sunil Kumar Sahu, Makoto Miwa, Sophia Ananiadou*, **Journal of the American Medical Informatics Association**, 2019, Impact Factor 4.270.
- J2 **Drug drug interaction extraction from biomedical text using long short-term memory network**, *Sunil Kumar Sahu, Ashish Anand*, **Journal of Biomedical Informatics**, 2018, Impact Factor 2.88.
- J3 **What matters in a transferable neural network model for relation classification in the biomedical domain?**, *Sunil Kumar Sahu, Ashish Anand*, **Artificial Intelligence in Medicine**, 2018, Impact Factor 2.87.
- C1 **Inter Sentence Relation Extraction with Document-level Graph Convolutional Neural Network**, *Sunil Kumar Sahu, Fenia Christopoulou, Makoto Miwa, Sophia Ananiadou*, **ACL-2019**, Florence, Italy.
- C2 **Learning local and global contexts using a convolutional recurrent network model for relation classification in biomedical text**, *Desh Raj, Sunil Kumar Sahu, Ashish Anand*, **CoNLL-2017**, Vancouver, Canada.
- C3 **Investigating how well contextual features are captured by Bi-directional Recurrent Neural Network Models**, *Kushal Kumar, Sunil Kumar Sahu, Ashish Anand*, **ICON-2017**, Kolkata, India.
- C4 **Recurrent neural network models for disease name recognition using domain invariant features**, *Sunil Kumar Sahu, Ashish Anand*, **ACL-2016**, Berlin, Germany.
- C5 **Predicting online doctor ratings from user reviews using convolutional neural networks**, *Ranti Dev Sharma, Samarth Tripathi, Sunil Kumar Sahu, Sudhanshu Mittal and Ashish Anand*, **ICMLC-2016**, Osaka, Japan.
- W1 **Biomedical Event Trigger Identification Using Recurrent Neural Network**, *Rahul PVS, Sunil Kumar Sahu, Ashish Anand*, **BioNLP at ACL-2017**, Vancouver, Canada.
- W2 **Relation extraction from clinical texts using domain invariant convolutional neural network**, *Sunil Kumar Sahu, Ashish Anand, Krishna Dev Orungati, Mahanandeeshwar Gattu*, **BioNLP at ACL-2016**, Berlin, Germany.
- W3 **Evaluation of distributed word representation for capturing semantics of biomedical text**, *Muneeb Th, Sunil Kumar Sahu, Ashish Anand*, **BioNLP at ACL-2015**, Beijing, China.

- B1 **Unified neural architecture for drug, disease and clinical entity recognition**, *Sunil Kumar Sahu, Ashish Anand*, Book Chapter- Elsevier- Deep learning Techniques for Biomedical and Health informatics (DL-BHI).

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## Unpublished Works

- 2018 **Siamese neural networks with random forest for detecting duplicate question pairs**, *Ameya Godbole, Aman Dalmia, Sunil Kumar Sahu*, <https://arxiv.org/abs/1801.07288>.
- 2014 **Named entity recognition in tweets using conditional random field (CRF) and domain specific features**.
- 2014 **Object recognition in images through deep convolutional neural network (CNN)** .
- 2013 **Digit recognition system in speech signal using hidden markov model (HMM)** .
- 2013 **Language identification system for small (ISCII coded) text corpus using different linear non-linear classifier**.

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## Conference/Workshop/Summer School Participations:

- 2016 **ACL-2016**, *Humboldt University, Berlin, Germany*, August 7-12, Thanks to Google Research India, Microsoft Research India and ACM-India/IARCS for entire traveling and other expenses support.
- 2015 **ACL-2015**, *China National Convention Center Beijing, China* , July 30 to Aug 1, Thanks to IIT Guwahati for entire traveling and other expenses support.
- 2015 **Summer School on Machine Learning**, *Microsoft Research and IISc Bangalore (Karnataka)*, 15 June to 26 June, Thanks to Microsoft Research India for entire traveling and other expenses support.
- 2015 **Information and Communication Technology in Healthcare: Challenges and Promises**, *IIT Guwahati (Assam)*, 25 March.
- 2014 **National Workshop on GPU Programming and Application**, *IIT Guwahati (Assam)*, 12 Sep to 14 Sep.
- 2008 **Information Security : Practice and Challenges**, *ITGGU Bilaspur (CG)*, 9 Feb to 10 Feb.

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## Certified Courses

- 2014 **Machine Learning Course**, by *Prof. Andrew Ng*, *Coursera*, Sep to Dec 2014, Course Link .

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## Reviewer

**Conferences:**, *EMNLP-2018, 2019, NAACL-2019*.

**Journals:**, *Journal of Biomedical Informatics, IEEE/ACM Transactions on Computational Biology and Bioinformatics*.

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## Research Talks:

- 2017 **Intelligence System Course**, *Indian Institute Technology Guwahati*, **Introduction of TensorFlow**.
- 2015 **ML Group**, *Indian Institute Technology Guwahati*, **Neural Probabilistic Language Model**.
- 2015 **Techniche-2015**, *Indian Institute Technology Guwahati*, **Evaluating distributed word representations for capturing semantics of biomedical concepts**.
- 2015 **Research Conclave-2015**, *Indian Institute Technology Guwahati*, **Recent Trends in Machine Learning**.

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## Languages

First **Hindi.**  
Second **English.**

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## References

**Prof. Sophia Ananiadou**, *Professor*, School of Computer Science, University of Manchester, United Kingdom, email id: [sophia.ananiadou@manchester.ac.uk](mailto:sophia.ananiadou@manchester.ac.uk).

**Dr. Ashish Anand**, *Associate Professor*, Department of Computer Science, Indian Institute of Technology Guwahati, India, email id: [anand.ashish@iitg.ernet.in](mailto:anand.ashish@iitg.ernet.in).