

## ABHINAV KUMAR

Assistant Professor

Department of Computer Science & Engineering

Indian Institute of Information Technology Surat, Gujarat, India

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### Academic Background

- **Ph.D.:** **Ph.D. in Computer Science & Engineering, NIT Patna, Bihar, India, (2016 – 2021), (Course work CGPA: 8.75).**  
**Thesis Title:** Deep learning for disaster-related event classification and location prediction from social media. (**Abstract is included at the last of the CV**)
- **M. Tech.:** **M. Tech. in Computer Science, Central University of South Bihar, India, (2013 -2015), (Marks: 75.90%).**
- **B. Tech. :** **B. Tech. in Computer Science & Engineering, Gaya College of Engineering, Gaya, India (Govt. of Bihar), (2009 – 2013), (Marks: 80.17%).**
- **Intermediate:** **Intermediate (10+2) (BSEB), I. Sc., TNB College, Bhagalpur, India, (2006-2008), (Marks: 70.44%).**
- **Matriculation:** **Matriculation (BSEB), (10<sup>th</sup>), Sharda Pathshala, Kahalgaon, Bhagalpur, India, (2006), (Marks: 78.00%).**

### Research/Teaching Experience

- Teaching Experience:
  - **Assistant Professor**, Indian Institute of Information Technology Surat, India (27 September 2022 – Till date).
  - **Assistant Professor**, Siksha “O” Anusandhan, Deemed to be University Bhubaneswar, India (04 March 2021 – 26 September, 2022).
- 4 Years Research Experience
- Lab classes: “Machine Learning”, “Deep Learning”, “C-Programming”, and “Data Structure”

### Area of Interest

- Machine learning
- Deep Learning
- Natural Language Processing
- Crisis Informatics
- Image Processing

## Publications

### Journal Publications:

- [J1] **Abhinav Kumar** and Jyoti Prakash Singh. "Deep Neural Networks for Location Reference Identification from Bilingual Disaster-Related Tweets." *IEEE Transactions on Computational Social Systems* (2022): 1-12. DOI: 10.1109/TCSS.2022.3213702. (SCIE).
- [J2] **Abhinav Kumar**, Jyoti Prakash Singh, Yogesh K. Dwivedi, and Nripendra P. Rana. "A deep multi-modal neural network for informative Twitter content classification during emergencies." *Annals of Operations Research* (2020): 1-32. <https://doi.org/10.1007/s10479-020-03514-x> (SCI).
- [J3] **Abhinav Kumar**, and Jyoti Prakash Singh. "Location reference identification from tweets during emergencies: A deep learning approach." *International journal of disaster risk reduction*,33 (2019): 365-375. (SCIE).
- [J4] **Abhinav Kumar**, Jyoti Prakash Singh, and Amit Kumar Singh, COVID-19 fake news detection using ensemble-based deep learning model, "IEEE IT Professionals" IEEE (2022). DOI: 10.1109/MITP.2022.3149140. (SCI).
- [J5] **Abhinav Kumar**, Jyoti Prakash Singh, and Amit Kumar Singh, Randomized convolutional neural network for disaster related eyewitness tweet identification. "Journal of Grid Computing", Elsevier, (2022) (SCIE).
- [J6] **Abhinav Kumar**, Jyoti Prakash Singh, Nripendra P. Rana, and Yogesh K. Dwivedi. Multi-channel convolutional neural network for the identification of eyewitness tweets of disaster, "Information Systems Frontiers" Springer (2021): (SCIE).
- [J7] Pradeep Kumar Roy and **Abhinav Kumar**, Early prediction of COVID-19 using ensemble of transfer learning, "Computers and Electrical Engineering", Elsevier, (2022): (SCI).
- [J8] Singh, Jyoti Prakash, **Abhinav Kumar**, Nripendra P. Rana, and Yogesh K. Dwivedi. "Attention-based LSTM network for rumor veracity estimation of tweets." *Information Systems Frontiers* (2020): 1-16. (SCIE).
- [J9] Rajnish Pandey, **Abhinav Kumar**, Jyoti Prakash Singh, and Sudhakar Tripathi (2021). Hybrid attention-based Long Short-Term Memory network for sarcasm identification. *Applied Soft Computing*, 106, 107348. (SCIE)
- [J10] Singh, Jyoti Prakash, Yogesh K. Dwivedi, Nripendra P. Rana, **Abhinav Kumar**, and Kawaljeet Kaur Kapoor. "Event classification and location prediction from tweets during disasters." *Annals of Operations Research*, 283, no. 1 (2019): 737-757. (SCI).
- [J11] Pradeep Kumar Roy, **Abhinav Kumar**, Jyoti Prakash Singh, Yogesh Kumar Dwivedi, Nripendra P. Rana, and Ramakrishnan Raman, (2021). Disaster related social media content processing for sustainable cities. *Sustainable Cities and Society*, 103363, Elsevier, (2021). (SCIE).
- [J12] Ashish Singh, **Abhinav Kumar**, Zahid Akhtar, and Muhammad Khurram Khan, (2022). Cybersecurity Intelligence in the Healthcare Systems. *IEEE Transactions on Industrial Informatics*, IEEE, (2022). (SCIE)
- [J13] Ashish Singh, **Abhinav Kumar**, and Suyel Namasudra, (2022). DNACDS: Cloud Data Security and Accessing Scheme Based on DNA Cryptography, *Frontiers of Computer Science*, Springer, (2022), DOI: 10.1007/s11704-022-2193-3

### Journals Communicated:

- [J14] **Abhinav Kumar**, Sunil Saumya, and Ashish Singh. Detecting Dravidian Offensive Posts in MIoT: A Hybrid Deep Learning Framework, “*Transactions on Asian and Low-Resource Language Information Processing*”, ACM, (2022): **(Under review)**
- [J15] Sunil Saumya, **Abhinav Kumar**, and Jyoti Prakash Singh, Filtering offensive language from multilingual social media contents: A deep learning approach, “*Transactions on Asian and Low-Resource Language Information Processing*”, ACM, (2022): **(Under review)**
- [J16] Pradeep Kumar Roy, Ashish Singh, **Abhinav Kumar**, Predicting Bitcoin Price with Bi-Directional Gated Recurrent Unit: A Deep Learning Approach, *Information Processing Management*, Elsevier, (2022): **(Under review)**.
- [J17] Rajnish Pandey, **Abhinav Kumar**, Jyoti Prakash Singh, and Sudhakar Tripathi, A hybrid convolutional neural network for sarcasm detection from multi-lingual social media posts, “*Multimedia Tools and Applications*”, Elsevier, (2021): **(Under review)**.

### Book Chapters:

- [B1] Brijendra Pratap Singh, **Abhinav Kumar**, Dibya Ranjan Das Adhikari, Jitesh Pradhan, Durgesh Singh, Debahuti Mishra, Fundamental Theories behind/for Detection of Fake News & Rumors, *CRC Press (Taylor & Francis)*, **(Accepted)**.
- [B2] Dibya Ranjan Das Adhikary, Jitesh Pradhan, **Abhinav Kumar** and Brijendra Pratap Singh, A Multilingual Review of Hate Speech Detection in Social Media Content, *CRC Press (Taylor & Francis)*, **(Accepted)**.

### Conference Publications:

- [C1] **Abhinav Kumar**, Jyoti Prakash Singh, and Nripendra P. Rana. Authenticity of geo-location and place name in tweets.” In 23<sup>rd</sup> Americas Conference on Information Systems (AMCIS)”, (2017). **(Scopus Indexed)**.
- [C2] **Abhinav Kumar**, Jyoti Prakash Singh, and Sunil Saumya. A Comparative Analysis of Machine Learning Techniques for Disaster-Related Tweet Classification. In *2019 IEEE R10 Humanitarian Technology Conference (R10-HTC) (47129)*, pp. 222-227. IEEE, (2019). **(Scopus Indexed)**.
- [C3] **Abhinav Kumar** and Jyoti Prakash Singh. Disaster severity prediction from Twitter Images., *Doctoral Symposium on Intelligence Enabled Research (DoSIER)*, Springer, (2020). **(Scopus Indexed)**.
- [C4] **Abhinav Kumar** and Nemi Chandra Rathore. “Relationship strength based access control in online social networks.” In *Proceedings of International Conference on Information and Communication Technology for Intelligent Systems: Volume 2*, pp. 197-206. Springer, Cham, (2016). **(Scopus Indexed)**.
- [C5] **Abhinav Kumar**, and Jyoti Prakash Singh. "Demonetization in India: Good or Bad in Context of Social Media." In *Proceedings of 2nd International Conference on Advanced Computing and Software Engineering (ICACSE)*. (2019).
- [C6] Kumari, Jyoti, R. Rajesh, and **Abhinav Kumar**. "Fusion of features for the effective facial expression recognition." In *2016 international conference on communication and signal processing (ICCSP)*, pp. 0457-0461. IEEE, (2016). **(Scopus Indexed)**.
- [C7] Saumya, Sunil, Jyoti Prakash Singh, and **Abhinav Kumar**. "A Machine Learning Model for Review Rating Inconsistency in E-commerce Websites." In *Data Management, Analytics and Innovation*, pp. 221-230. Springer, Singapore, (2020). **(Scopus Indexed)**.
- [C8] Gunjan Kumar, Jyoti Prakash Singh, and **Abhinav Kumar**. “A Deep Multi-modal Neural Network for the Identification of Hate Speech from Social Media.” In *Conference on e-*

*Business, e-Services and e-Society* (pp. 670-680). Springer, Cham (2021, September). **(Scopus Indexed)**.

- [C9] Anu Priya and **Abhinav Kumar**. “Deep ensemble approach for COVID-19 fake news detection from social media.” In *2021 8<sup>th</sup> International Conference on Signal Processing and Integrated Networks (SPIN)*, IEEE, (26-27 August, 2021) **(Scopus Indexed)**.
- [C10] Ashish Kumar Singh, **Abhinav Kumar**, and Zahid Akhtar. “Bitcoin price prediction: A deep learning approach.” In *2021 8<sup>th</sup> International Conference on Signal Processing and Integrated Networks (SPIN)*, IEEE, (26-27 August, 2021) **(Scopus Indexed)**.
- [C11] Pradeep Kumar Roy and **Abhinav Kumar**. “Convolutional Neural Network for Text: A stepwise working guidance” In *2021 International Conference on Emerging Trends in Engineering (Yukthi)*, (24-26 September, 2021)
- [C12] Suprakash Samantaray and **Abhinav Kumar**. “Bi-directional Long Short-Term Memory Network for Fake News Detection from Social Media” In *2021 International Conference on Intelligent and Cloud Computing (ICICC-2021)*, (22-23 October, 2021) **(Scopus Indexed)**.
- [C13] Manswini Swain, Manish Biswal, Priya Raj, **Abhinav Kumar**, and Debahuti Mishra. “Hate and Offensive Language Identification from Social Media: A Machine Learning Approach” In *2021 International Conference on Electronic Systems and Intelligent Computing (ESIC-2021)*, (5-6 November, 2021) (Accepted).
- [C14] **Abhinav Kumar**, Sunil Saumya, and Jyoti Prakash Singh. (2020). NITP-AI-NLP@ HASOC-Dravidian-CodeMix-FIRE2020: A Machine Learning Approach to Identify Offensive Languages from Dravidian Code-Mixed Text. In *FIRE (Working Notes)* (pp. 384-390). **(Scopus Indexed)**.
- [C15] **Abhinav Kumar**, Sunil Saumya, and Jyoti Prakash Singh. (2020). NITP-AI-NLP@ HASOC-FIRE2020: Fine Tuned BERT for the Hate Speech and Offensive Content Identification from Social Media. In *FIRE (Working Notes)* (pp. 266-273). **(Scopus Indexed)**.
- [C16] **Abhinav Kumar**, Sunil Saumya, and Jyoti Prakash Singh. (2020). NITP-AI-NLP@ Dravidian-CodeMix-FIRE2020: A Hybrid CNN and Bi-LSTM Network for Sentiment Analysis of Dravidian Code-Mixed Social Media Posts. In *FIRE (Working Notes)* (pp. 582-590). **(Scopus Indexed)**.
- [C17] **Abhinav Kumar**, Sunil Saumya, and Jyoti Prakash Singh (2020). NITP-AI-NLP@ UrduFake-FIRE2020: Multi-layer Dense Neural Network for Fake News Detection in Urdu News Articles. In *FIRE (Working Notes)* (pp. 458-463). **(Scopus Indexed)**.
- [C18] Ankit Kumar Mishra, Sunil Saumya, and **Abhinav Kumar** (2020). IIIT\_DWD@ HASOC 2020: Identifying offensive content in Indo-European languages. In *FIRE (Working Notes)* (pp. 266-273). **(Scopus Indexed)**.
- [C19] Sunil Saumya, **Abhinav Kumar**, and Jyoti Prakash Singh. (2021, April). Offensive language identification in Dravidian code mixed social media text. In *Proceedings of the First Workshop on Speech and Language Technologies for Dravidian Languages* (pp. 36-45). **(Scopus Indexed)**.
- [C20] Rakshita Jain, Devanshi Goel, Prashant Sahu, **Abhinav Kumar**, and Jyoti Prakash Singh. (2021). Profiling Hate Speech Spreaders on Twitter. In *CLEF*. **(Scopus Indexed)**.
- [C21] **Abhinav Kumar**, Sunil Saumya, and Pradeep Kumar Roy, SOA\_NLP@LT-EDI-ACL2022: An Ensemble Model for Hope Speech Detection from YouTube Comments, In *Proceedings of the Second Workshop on Language Technology for Equality, Diversity and Inclusion*, Association of Computer Linguistics, (2022). **(Scopus Indexed)**.
- [C22] Pradeep Kumar Roy, Snehaan Bhawal, Abhinav Kumar, and Bharathi Raja Chakravarthi, IIITSurat@LT-EDI-ACL2022: Hope Speech Detection using Machine Learning, In *Proceedings of the Second Workshop on Language Technology for Equality, Diversity and Inclusion*, Association of Computer Linguistics, (2022). **(Scopus Indexed)**.
- [C23] **Abhinav Kumar**, Sunil Saumya and Jyoti Prakash Singh. (2021), An ensemble-based model for Sentiment Analysis of Dravidian Code-mixed Social Media Posts. In *FIRE-2021 (Working Notes)*, **(Scopus Indexed)**.



- [C24] **Abhinav Kumar**, Pradeep Kumar Roy and Jyoti Prakash Singh. (2021), Bidirectional Encoder Representations from Transformers for the COVID-19 vaccine stance classification. In FIRE-2021 (Working Notes), (**Scopus Indexed**).
- [C25] **Abhinav Kumar**, Pradeep Kumar Roy and Jyoti Prakash Singh. (2021), A deep Learning Approach for Identification of Arabic Misogyny from Tweets. In FIRE-2021 (Working Notes), (**Scopus Indexed**).
- [C26] **Abhinav Kumar**, Pradeep Kumar Roy and Sunil Saumya. (2021), An Ensemble Approach for Hate and Offensive Language Identification in English and Indo-Aryan Languages. In FIRE-2021 (Working Notes), (**Scopus Indexed**).
- [C27] **Abhinav Kumar**, Sunil Saumya and Pradeep Kumar Roy. (2021), Abusive and Threatening Language Detection from Urdu Social Media Posts: A machine learning approach. In FIRE-2021 (Working Notes), (**Scopus Indexed**).
- [C28] **Abhinav Kumar** and Jyoti Kumari, A Machine Learning Approach for Fake News Detection from Urdu Social Media Posts. In FIRE-2021 (Working Notes), (**Scopus Indexed**).
- [C29] Anu Priya and **Abhinav Kumar**. (2021), Hate and Offensive content identification from Dravidian social media posts: A deep learning approach. In FIRE-2021 (Working Notes), (**Scopus Indexed**).
- [C30] Jyoti Kumari and **Abhinav Kumar**. (2021), A Deep Neural Network-based Model for the Sentiment Analysis of Dravidian Code-mixed Social Media Posts. In FIRE-2021 (Working Notes), (**Scopus Indexed**).
- [C31] Pradeep Kumar Roy and **Abhinav Kumar**. (2021), Sentiment Analysis on Tamil Code-Mixed Text using Bi-LSTM. In FIRE-2021 (Working Notes), (Accepted).
- [C32] Snehaan Bhawal, Pradeep Roy and **Abhinav Kumar**. (2021). Hate Speech and Offensive Language Identification on Multilingual Code-Mixed Text using BERT. In FIRE-2021 (Working Notes), (**Scopus Indexed**).
- [C33] Ankit Kumar Mishra, Sunil Saumya and **Abhinav Kumar**. (2021), Sentiment analysis of Dravidian-CodeMix language. In FIRE-2021 (Working Notes), (**Scopus Indexed**).
- [C34] Jyoti Kumari and **Abhinav Kumar** (2021), Offensive Language Identification on Multilingual Code-Mixing Text, In FIRE-2021 (Working Notes), (**Scopus Indexed**).

## Awards & Recognitions

- Qualified **University Grant Commission – National Eligibility Test (UGC-NET)**, November, 2017
- Qualified **Graduate Aptitude Test in Engineering (GATE)** examination five times: **GATE-2013, GATE-2014, GATE-2015, GATE-2018, and GATE-2020**.
- **MHRD stipend (GATE)** for the M. Tech.
- **MHRD stipend** for the Ph.D.

## Academic Activities

- Guest Editor: *Cybersecurity Intelligence in the Healthcare System* in **IEEE Transactions on Industrial Informatics**
- **Reviewer of IEEE Transactions on Computational Social Systems (SCI Indexed)**
- **Reviewer of ACM Transactions on Asian and Low-Resource Language Information (SCI Indexed)**
- **Reviewer of Information Processing Management (SCI Indexed)**
- **Reviewer of Heliyon Journal (SCIE Indexed)**
- **Reviewer of International Journal of Information Management Data Insights (Elsevier)**

- **Reviewer of Sustainability Analytics and Modeling (Elsevier)**
- **Reviewer of Multimedia Tools and Applications (SCI Index Journal, Springer)**
- **Reviewer of Complex and Intelligent Systems (SCI Index Journal, Springer)**
- **Reviewer of Applied Artificial Intelligence (SCI Index Journal, Taylor & Francis)**
- **Reviewer of Computer Modelling in Engineering & Sciences (SCI Index)**
- **Reviewer of IEEE Access (SCI Index)**
- **Reviewer of Journal of Computational Social Science (Springer)**
- **Program Committee Member of ICONIP-2022 (29<sup>th</sup> Meeting).**
- **Program committee member and Reviewer for 13<sup>th</sup> FIRE-2021**
- **Program committee member and Reviewer for 17<sup>th</sup> ICON-2020**
- **Program committee member and Reviewer for 12<sup>th</sup> FIRE-2020**
- **Program committee member for 19<sup>th</sup> I3E-2020**
- **Reviewer of 27<sup>th</sup> ECIS-2019**
- **Local Organizing Committee ICICC-2021, Siksha ‘O’ Anusandhan Deemed to be University, Bhubaneswar, India**
- **Worked as a volunteer of students’ organizing committee for ICRTCSE-2014**

### Conference, Workshop, and Faculty Development Program

- [1] Presented paper titled “Bi-directional Long Short-Term Memory Network for Fake News Detection from Social Media” at ICICC-2021 (SOA Deemed to be University, Bhubaneswar), 22<sup>nd</sup> -23<sup>rd</sup> October, 2021.
- [2] Presented paper titled “Hate and Offensive Language Identification from Social Media: A Machine Learning Approach” at ESIC-2021 (KIIT Deemed to be University, Bhubaneswar), 5<sup>th</sup> – 6<sup>th</sup> November, 2021.
- [3] Participated and presented paper titled “Disaster severity prediction from Twitter Images” at DoSIER-2020 from 12-13<sup>th</sup> August, 2020.
- [4] Participated and presented paper titled “A Machine Learning Model for Review Rating Inconsistency in E-commerce Websites” at ICDMAI-2020 (New Delhi, India) from 17-19<sup>th</sup> January, 2020.
- [5] Participated in Twelfth meeting of the Forum for Information Retrieval Evaluation (FIRE-2020), Virtual Event from 16<sup>th</sup> -20<sup>th</sup> December, 2020.
- [6] Attended International Conference on Recent Trends in Computer Science & Engineering (ICRTCSE-2014) at Central University of South Bihar from 8-9<sup>th</sup> February, 2014.
- [7] Attended webinar on “Blockchain and Digital Twin” held online on 28<sup>th</sup> June 2021 (Organized by Department of CSE, SOA Deemed to be University, Bhubaneswar).
- [8] Attended 3rd Indian Workshop on Machine Learning held at IIT BHU from 1-3<sup>rd</sup> July, 2018.
- [9] Attended GIAN Workshop on Neural Machine Translation, held at IIT Patna 04- 10<sup>th</sup> December, 2017.
- [10] Attended GIAN Workshop on “Unsupervised Data Mining: From Batch to Stream Mining Algorithms” from 1-5<sup>th</sup> April, 2019 at IIT Patna.
- [11] Attended Workshop on “Recent Advances in Computational Intelligence (RACI)-2017” at Indian Statistical Institute (ISI) Kolkata from 18-22<sup>th</sup> September, 2017.
- [12] Attended International Workshop on “5G Secured Smart City” from 20-21<sup>st</sup> March, 2017 at NIT Patna.
- [13] Attended GAIN workshop on “Multi-objective optimization” from 15-22<sup>th</sup> December, 2016 at IIT Patna.
- [14] Faculty Development Program (FDP) on “Deep learning and Applications” from 9-13<sup>th</sup> December, 2019 at NIT Patna.

- [15] Faculty Development Program (FDP) on “Natural Language Processing” from 6-10<sup>th</sup> January, 2020 at NIT Patna.
- [16] Faculty Development Program (FDP) on “AI and Machine Learning” from 4-8<sup>th</sup> June, 2018 at NIT Patna.
- [17] Faculty Development Program (FDP) on “ANN and Deep Learning” from 11-15<sup>th</sup> June, 2018 at NIT Patna.

## **B. Tech. Major Project Guided**

- A Machine Learning Approach to Detect Hoax Speech from Social Media Comments (Jan – July 2022).
- Citation Count Prediction of a Research Article using Machine Learning (Jan – July 2022).
- Hate and offensive language identification from social media using deep learning (Jan – June 2021).
- Deep learning for fake news detection from social media (Jan – June 2021).

## **Personal Information**

- **Present Address:** Department of Computer Science & Engineering, Indian Institute of Information Technology Surat, Gujarat, India, 394190.
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- **Date of Birth:** 02-October-1991
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- **Marital Status:** Single
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- **Scopus Profile:** <https://www.scopus.com/authid/detail.uri?authorId=57198891988>
- **Scopus ID:** 57198891988