

# MANJIRA SINHA

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## AREAS OF INTEREST:

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Natural Language Processing, Text Readability and Psycholinguistics, Computer Assisted Education and Assistive Technology, Economics and Education

## PROFESSIONAL EXPERIENCE:

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- Assistant Professor Grade I, IIT Kharagpur. November 2018 - till Present
- Researcher, Accenture AI Research, Gurgaon. May 2018- September 2018
- Research Scientist, Conduent Labs India (Formerly, Xerox Research Center India), Bengaluru. 2015 - April 2018
- Guest Faculty, Indian Institute of Information Technology Kalyani, August 2017- May 2018

## EDUCATION:

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- **PhD in Computer Science and Engineering** 2009 - 2015  
INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR  
**Thesis Title:** Computational Modeling of Text Readability in Bangla: A Reader Oriented Approach.  
**Supervisor:** Prof. Anupam Basu.
- **GATE Percentile: 99.34, All India Rank: 277**
- **B.Tech in Computer Science and Engineering** 2005-2009  
HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA  
**Thesis Title:** Efficient Graph Coloring Through Neural Network and Genetic Algorithms.  
**CGPA:** 8.65
- **Higher Secondary Examination** 2005  
WEST BENGAL COUNCIL OF HIGHER SECONDARY EDUCATION  
**Year of passing:** 2005  
**Marks obtained:** 84.2%
- **Madhyamik Examination** 2003  
WEST BENGAL BOARD OF SECONDARY EDUCATION  
**Marks obtained:** 92.25%

## PUBLISHED JOURNALS:

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1. **Manjira Sinha**, and Anupam Basu, *A Study of Readability of Texts in Bangla through Machine Learning Approaches*, Journal of Education and Information Technologies (EAIT), Springer, vol. 21, pp. 1071-1094, 2016, published online: December 7, 2014, DOI 10.1007/s10639-014-9368-y.
2. Tirthankar Dasgupta, **Manjira Sinha**, and Anupam Basu, *Computational Models of the Lexical Representation of Bangla Compound Words in the Mental Lexicon*, Journal of Psycholinguistic Research (JOPR), Springer, vol. 45, pp. 833-855, 2016, published online: May 22, 2015, DOI: 10.1007/s10936-015-9367-1.
3. Tirthankar Dasgupta, **Manjira Sinha**, and Anupam Basu, *Computational Modelling of Morphological Effects in Bangla Visual Word Recognition*, Journal of Psycholinguistic Research (JOPR), Springer, vol. 44, pp. 587-610, 2015, published online: July 2, 2014, DOI: 10.1007/s10936-014-9302-x.
4. Anupam Basu, Tirthankar Dasgupta, and **Manjira Sinha**, *Development of a Framework for Information Processing, and Communication for Blind People in India*, Journal of Technology and Disability (T&D), IOS Press, vol. 27, no. 3, pp. 65-78, 2015.
5. Tirthankar Dasgupta, **Manjira Sinha**, and Anupam Basu, *Resource Creation and Development of an English-Bangla Back Transliteration System*, International Journal of Knowledge- Based and Intelligent Engineering Systems (KES), IOS Press, vol. 19, no. 1, pp. 35-46, 2015.

## CONFERENCE PUBLICATIONS:

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1. Deepshikha Das, **Manjira Sinha**, *Effects of Economic, Social and Cultural Status (ESCS) Among Bangla Speaking Pupils: An Experimental Content and Language Integrated Collaborative Learning Design for Peer Groups in India*, 26th Annual Conference of AMERICAN SOCIETY OF BUSINESS AND BEHAVIORAL SCIENCES, ASBBS, 2019
2. **Manjira Sinha**, Satarupa Guha, Preethy Verma, Tridib Mukerjee, and Sandya Mannarswamy, *My City, My Voice: Listening to the Citizen Views from Web Sources*, Proceedings of The ACM India Joint International Conference on Data Science & Management of Data, (CODS-COMAD), 2019

3. Shreshtha Mundra, Sachin Kumar, **Manjira Sinha**, and Sandya Mannarswamy, *Mining & Summarizing E-petitions for Enhanced Understanding of Public Opinion*, Proceedings of the 27th ACM International Conference on Information and Knowledge Management, (CIKM) 2018, pp. 1695–1698
4. Shashank Gupta, Raghuveer Thirukovalluru, **Manjira Sinha**, and Sandya Mannarswamy, *CIMTDetect: A Community Infused Matrix-Tensor Coupled Factorization Based Method for Fake News Detection*, 2018 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), 2018, pp. 278-281
5. Anirban Sen, **Manjira Sinha**, Sandya Mannarswamy, and Shourya Roy, *Stance classification of multi-perspective consumer health information*, 5th ACM India Joint International Conference on Data Science and Management of Data (CoDS-COMAD), 2018, pp.273-281
6. **Manjira Sinha**, Tirthankar Dasgupta, and Anupam Basu, *Study on Visual Word Recognition in Bangla across Different Reader Groups*, 14th International Conference on Natural Language Processing (ICON), 2017, pp.427-434
7. Anirban Sen, **Manjira Sinha**, and Sandya Mannarswamy, *Improving Similar Question Retrieval using a Novel Tripartite Neural Network based Approach*, 9th Annual Meeting of the Forum for Information Retrieval Evaluation (FIRE), 2017, pp. 1-5
8. Ganesh J, Himanshu S Bhatt, **Manjira Sinha**, and Shourya Roy, *Multi-part Representation Learning For Cross-domain Web Content Classification Using Neural Networks*, 28th ACM Conference on Hypertext and Social Media (HT), 2017, pp.305-314
9. Anirban Sen, **Manjira Sinha**, and Sandya Mannarswamy, *Multi-task Representation Learning for Enhanced Emotion Categorization in Short Text*, Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2017, pp. 324-336
10. Shreshtha Mundra, Anirban Sen, **Manjira Sinha**, Sandya Mannarswamy, Sandipan Dandapat and Shourya Roy , *Fine-grained Emotion Detection in Contact Center Chat Utterances*, Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2017, pp. 337-349
11. Shreshtha Mundra, **Manjira Sinha**, Sandya Mannarswamy and Anirban Sen, *Embedding Learning of Figurative Phrases for Emotion Classification in Micro-Blog Texts*, 4<sup>th</sup> ACM IKDD Conference on Data Sciences (CoDS), 2017 (Poster)
12. Himanshu S. Bhatt, **Manjira Sinha**, Balaji Peddamuthu and Shourya Roy, *Transfer Learning for Cross-domain Topic Classification*, 4<sup>th</sup> ACM IKDD Conference on Data Sciences (CoDS), 2017 (Industry Track)
13. **Manjira Sinha**, Tirthankar Dasgupta and Anupam Basu, *Effect of Syntactic Features in Bangla Sentence Comprehension*, 13<sup>th</sup> International Conference on Natural Language Processing (ICON), 2016, pp. 275-284
14. Himanshu S. Bhatt, **Manjira Sinha** and Shourya Roy , *Cross-domain Text Classification with Multiple Domains and Disparate Label Sets* , 54<sup>th</sup> annual meeting of the Association for Computational Linguistics(ACL), 2016, pp. 1641-1650.
15. **Manjira Sinha**, Preethy Varma, Gayatri Shivakumar, Mridula Singh, Deepthi Chander, Tridib Mukherjee, Koustuv Dasgupta. *Improving Urban Transportation through Social Media Analytics*, 3<sup>rd</sup> ACM IKDD Conference on Data Sciences (CoDS), 2016 (Poster)
16. Tirthankar Dasgupta, **Manjira Sinha**, and Anupam Basu, *Compositionality in Bangla Compound Verbs and their Processing in the Mental Lexicon*, 12<sup>th</sup> International Conference on Natural Language Processing (ICON), 2015, pp. 60-65
17. **Manjira Sinha**, Tirthankar Dasgupta, Anupam Basu, *Text Readability in Hindi: A Comparative Study of Feature Performances Using Support Vector Machine*, 11<sup>th</sup> International Conference on Natural Language Processing (ICON), 2014, pp. 92-100.
18. Tirthankar Dasgupta, **Manjira Sinha**, Anupam Basu, *Web Browsing Interface for People with Severe Speech and Motor Impairment in India*, 16<sup>th</sup> International ACM SIGACCESS Conference on Computers and Accessibility(ASSETS), 2014, pp. 285-286.
19. **Manjira Sinha**, Tirthankar Dasgupta, Anupam Basu, *Development of Accessible Toolset to Enhance Social Interaction Opportunities for People with Cerebral Palsy in India*, 16<sup>th</sup> International ACM SIGACCESS Conference on Computers and Accessibility(ASSETS), 2014, pp. 249-250.
20. Tirthankar Dasgupta, **Manjira Sinha**, Anupam Basu, *Web Sanyog: a Portable Assistive Web Browser for People with Cerebral Palsy*, 16<sup>th</sup> International ACM Conference on Multimodal Interaction (ICMI), 2014.
21. **Manjira Sinha**, Tirthankar Dasgupta, and Anupam Basu, *Influence of Target Reader Background and Text Features on Text Readability in Bangla: A Computational Approach*, 25<sup>th</sup> International Conference on Computational Linguistics (COLING),2014, pp. 345-354.
22. **Manjira Sinha**, Tirthankar Dasgupta, and Anupam Basu, *Design and Development of an On-line Computational Framework to Facilitate Language Comprehension Research on Indian Languages*, 9<sup>th</sup> International Conference on Language Resources and Evaluation, LREC'14,pp. 203-210.

23. **Manjira Sinha**, Tirthankar Dasgupta, Surabhi Agrawal, Sneha Jain, Nidhi Bagaria, and Anupam Basu, *Development of Entertainment and Social Interaction Applications to improve Quality-of-Life(QOL) of people with cerebral palsy*, IEEE Technological symposium 2014, TechSym'14. (**Awarded the Best Paper in HCI track**).
24. Tirthankar Dasgupta, **Manjira Sinha**, Anupam Basu, *A Joint Source Channel Model for the English to Bengali Back Transliteration*, Mining Intelligence and Knowledge Exploration (MIKE), 2013. pp. 751-760.
25. **Manjira Sinha**, Kaustav Rudra, Tirthankar Dasgupta and Anupam Basu, *How Word Order Affects Sentence Comprehension in Bangla: A Computational Approach to Bangla*, Mining Intelligence and Knowledge Exploration (MIKE), 2013. pp. 769-779.
26. Tirthankar Dasgupta, **Manjira Sinha**, Anupam Basu, *Computational Models to understand the Access and Representation of Bangla Polymorphic Words in the Mental Lexicon*, 24<sup>th</sup> International Conference on Computational Linguistics (COLING), 2012, pp-235-244.
27. **Manjira Sinha**, Shakshi Sharma, Tirthankar Dasgupta, Anupam Basu, *A New Readability Measure of Bangla and Hindi Texts*, 24<sup>th</sup> International Conference on Computational Linguistics (COLING), 2012, pp-1141-1150.
28. **Manjira Sinha**, Avik Jana, Tirthankar Dasgupta, Anupam Basu, *A New Semantic Lexicon and Similarity Measure in Bangla*, Workshop on Cognitive Aspects of the Lexicon (CogALex-III), 24<sup>th</sup> International Conference on Computational Linguistics (COLING), 2012, pp-171-182.
29. Tirthankar Dasgupta, Sibansu Mukherjee, **Manjira Sinha**, and Anupam Basu, *Compound Verb Identification in Bangla*, Workshop on South and Southeast Asian Natural Language Processing (SANLP), 24<sup>th</sup> International Conference on Computational Linguistics (COLING), 2012, pp-153-162.
30. Tirthankar Dasgupta, **Manjira Sinha**, Anupam Basu, *Forward Transliteration of Dzongkha Text to Braille*, Workshop on Advances in Text Input Mechanisms, 24<sup>th</sup> International Conference on Computational Linguistics (COLING), 2012, pp-97-106.
31. **Manjira Sinha**, Tirthankar Dasgupta and Anupam Basu, *A Complex Network Analysis of Syllables in Bangla through SyllableNet*, Workshop on Indian Language and Data: Resources and Evaluation (WILDRE), 8<sup>th</sup> International Conference on Language Resources and Evaluation (LREC), 2012.
32. Tirthankar Dasgupta, Aakash Anuj, **Manjira Sinha**, Ritwika Ghose, Anupam Basu, *VoiceMail Architecture in Desktop and Mobile Devices for the Blind People*, 4<sup>th</sup> IEEE International Conference on Intelligent Human Computer Interaction (IHCI), 2012.

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#### US PATENTS FILED:

- Transferring Partial Knowledge for Cross-domain Text Classification across Multiple Domains with Disparate Labelsets.
- System and Method to Automatically Identify Urban Issues From Web Sources with Minimal Supervision.
- Stance Classification of Multi-Perspective Consumer Health Information.
- Dynamic Adaptation of Pre-trained Neural Networks for Cross-domain Learning.
- Fine-grained Emotion Detection in Contact Center Chat Utterances using a Neural Network Approach

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#### SCIENTIFIC RESPONSIBILITIES:

- **Reviewer-**
  1. Journal of Education and Information Technologies, Springer
  2. Reading & Writing Quarterly: Overcoming Learning Difficulties, Taylor & Francis.
- **Track Chair**, Artificial Intelligence & Data Analytic, Grace Hopper Celebration India, 2019
- **Track Chair**, Artificial Intelligence & High Performance Computing, Grace Hopper Celebration India, 2018
- **Organizing Chair** of International Workshop on Language, Cognition and Computational Models (LCCM), in conjunction with the 27th International Conference on Computational Linguistics (COLING 2018)
- **Organizing Chair** of 1st International Workshop on Social Media Analytics for Smart Cities (SMASC 2017), in conjunction with the International Conference on Knowledge Management (CIKM 2017)
- **Organizing Committee Member** of 14<sup>th</sup> International Linguistic Olympiad India, 2016.
- **Regional Coordinating Committee Member** of Panini Linguistic Olympiad in India, 2013, 2014.
- **Program Committee member** of 8th meeting of Forum for Information Retrieval Evaluation (FIRE) 2016, 2017, 2018, 2019

- **Program Committee member** of ACM Compute, 2017
- **Program Committee member** of ACM IKDD CODS-COMAD, 2018, 2019
- **Organizer-**
  1. Shared Task on Insincere Question Detection in COmmunity Question Answering Datasets in FIRE 2019
  2. Tutorial on Advances in Psycholinguistics in 15th International Conference on Natural Language Processing (ICON) 2018
  3. Tutorial on Psycholinguistics in 14th International Conference on Natural Language Processing (ICON) 2017
  4. Tutorial on NLP in Healthcare Informatics in 13th International Conference on Natural Language Processing (ICON) 2016
  5. Shared task on Consumer Health Information Search (CHIS) in FIRE 2016
  6. Tutorial on Domain Adaptation: Principles, Applications and Systems in 12th International Conference on Natural Language Processing (ICON) 2015
  7. Workshop on Transfer Learning in Grace Hoppers Conference India (GHCI) 2015
  8. Workshop on Cognitive Aspects of Natural Interface Design 2012
  9. Short Term Course on Development of Android based Applications on Aakash 2013;
  10. Workshop on Language, Cognition and Computation(LCC) 2013.

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LIST OF REFEREES:

- Prof. Anupam Basu  
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