Ranjan Satapathy

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Summary

- Experience of **4 years** (as in January 2020) in the field of Natural Language Processing, Deep Learning and Sentiment Analysis in Singapore.
- Experience of **2 years** (as in January 2020) in the field of Human Robot Interaction in Singapore.
- A quick learner and affable. A **Natural Language Processing, Deep Learning and Sentiment Analysis** researcher.
- Author of the book titled "*Sentiment Analysis in the Bio-Medical Domain - Techniques, Tools, and Applications (2018)*".

Education

2017–2020	**School of Computer Science & Engineering, Nanyang Technological University**, *Natural Language Understanding*, Thesis Submitted. Ph.D candidate
2014–2016	**School of Computer and Information Sciences, University of Hyderabad**, Artificial Intelligence. M.Tech (8.51/10)
2009–2013	**International Institute of Information Technology, Bhubaneswar**, *Computer Science & Engg.*, B.Tech (8.15/10).

Technical skills

Advanced Level	Python, Sentiment Analysis, Natural Language Understanding, Microtext Understanding
Intermediate Level	Human-Robot Interaction, Deep Learning (Tensorflow, Theano, Keras), Machine Learning (Scikit-Learn), Natural Language Processing
Basic Level	Unity, C#

Professional Experience

August 2019 – Present	**Artificial Intelligence Engineer**, *Human Robot Interaction*, Naditech AI Pte. Ltd.. 1. Responsible for social robot's natural language understanding and dialogue generation. 2. Developed a memory model for the robot based on topic. 3. Responsible for designing of new platform. 4. Responsibilities are not limited to software, constant discussion with firmware team so as to efficiently control the motors (FAP mapping) through software is part of my responsibility. *Skills Applied : Natural Language Understanding, Deep Learning, Sentiment Analysis, Python*

October 2016 – July 2019	**Research Associate**, *Social Robot: Nadine*, Institute for Media Innovation, Nanyang Technological University, Singapore, Dr. Erik Cambria and Prof. Nadia Thalmann.

1. Responsible for social robot's natural language understanding and dialogue generation.
2. Developed a lexicon based approach for the robot to understand and reply to queries over speech and social media with a BLEU score of 0.82.
3. Developed a pattern matching based email response module for the social robot.
4. Implemented seq2seq deep learning models for microtext normalization which enhanced the accuracy of polarity detection by 6%.
5. Developed a subjective detection module based on a Reinforcement Learning Algorithm which achieved F-score of 0.5 with English MPQA benchmark and 0.76 with multilingual labeled tweets respectively.
6. Developed a phonetic-based microtext normalization module which enhanced the sentiment analysis by 4%.

Skills Applied : Natural Language Understanding, Microtext Normalization, Deep Learning, Sentiment Analysis, Python

Jan–June 2016	**Research Assistant**, *M.Tech (Final Year project)*, SCSE, Nanyang Technological University, Singapore, Dr. Erik Cambria.

1. Developed a Lexicon for Bio-Medical Sentiment Analysis : Implemented crawlers to extract the medical terms and features like definition and their synonyms for constructing WordNet Medical Events (WME) lexicon.
2. Incorporated new features which enhanced the accuracy of WME by 10%.
3. Developed a hybrid approach (lexicon and machine learning) to apply sentiment analysis in bio-medical domain achieving F-measure of 0.86.

Skills Applied : Bio-medical text mining, Machine Learning, Sentiment Analysis, Python

Publications

Journal

2020 **Under Revision COGN. COMP.**, *A Review of Shorthand Systems: From Brachygraphy to Microtext*, **Satapathy,R.**, Cambria, E, and Nanetti, A.

2019 **Pattern Recognition Letters**, *Fuzzy commonsense reasoning for multimodal sentiment analysis*, Iti Chaturvedi, **Ranjan Satapathy**, Sandro Cavallari, Erik Cambria.

2017 **Computacion y Sistemas journal**, *Subjectivity Detection in Nuclear Energy Tweets.*, **Satapathy R**, Chaturvedi I, Cambria E, Ho S, Cheon Na J.

Conference

2020 **Submitted in LREC**, *CEMt-Norm: A Corpus for English Microtext Normalization.*, **Satapathy R**, Cambria E.

2019 **In. IEEE RO-MAN**, *Can a Humanoid Robot be part of the Organizational Workforce? A User Study Leveraging Sentiment Analysis*, Nidhi Mishra, Manoj Ramanathan, **Ranjan Satapathy**, Erik Cambria and Nadia Magnenat-Thalmann.

2019 **In. CSoNET**, *PhonSenticNet: A Cognitive Approach to Microtext Normalization for Concept-Level Sentiment Analysis*, **Ranjan Satapathy**, Aalind Singh, Erik Cambria.

2019 **In. IJCNN**, *Seq2Seq Deep Learning Models for Microtext Normalization.*, **Satapathy, R.**, Li, Y., and Cambria, E.

2019 **In. CICLING**, *Lexicon based microtext normalization for social robots.*, **Satapathy,R.**, Cambria, E. and Thalmann, N.

2018 **In. IEEE SSCI**, *BabelSenticNet: A commonsense reasoning framework for multilingual sentiment analysis.*, D Vilares, H Peng, **R Satapathy**, E Cambria.

2017 **In. ICDMW, IEEE**, *Phonetic-Based Microtext Normalization for Twitter Sentiment Analysis.*, **Satapathy R**, Guerreiro C, Chaturvedi I, Cambria E.

Books

2018 **Springer Publications**, *Sentiment Analysis in the Bio-medical Domain: Techniques, Tools, and Applications.*, **Satapathy R**, Cambria E, and Hussain A.

REVIEWER OF JOURNALS

Knowledge-Based Systems, *IF - 5.101.*

Artificial Intelligence Review, *IF - 5.095.*

Cognitive Computation, *IF - 4.287.*

Multimedia Tools and Applications, *IF - 2.101.*

Technical Talks

2018 **Talk on "Microtext Normalization in Natural Language Understanding"**, *Attended by 50+ students*, Institute of Media Innovation, Nanyang Technological University, Singapore.

2017 **Talk on "An Introduction to Natural Language Processing"**, *Attended by 150+ students*, Mahindra École Centrale, Hyderabad, India.