Ranjan Satapathy

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Summary

- A quick learner and affable person. A **Natural Language Processing, Deep Learning, Sentiment Analysis and Human Robot Interaction** researcher.
- Experience of **4 years** in the field of Natural Language Processing, Deep Learning and Sentiment Analysis in Singapore.
- Experience of **2 years** in the field of Human-Robot Interaction in Singapore.
- 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, Microtext Normalization*, 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 Processing, Microtext Normalization

Intermediate Level: Human-Robot Interaction, Deep Learning (Tensorflow, PyTorch, Keras), Machine Learning (Scikit-Learn), Natural Language Understanding

Basic Level: SQL

Professional Experience

August 2019 – Present **Artificial Intelligence Engineer**, *Virtual Assistants and Social Robot*, Dex-Lab group at novaCityNets Pte. Ltd.

1. Demonstrated ability to deliver AI/ML solutions from concepts to deployment.
2. Responsible for social robot's natural language understanding and dialogue generation.
3. Developed a memory model for the robot based on topic.
4. Responsible for designing of new platform.
5. 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, Human-Robot Interaction

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, NLTK, Spacy, Scikit-Learn, Tensorflow, Pytorch

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, NLTK

Publications

Submited to COLING **2020**, *CEMt-Norm: A Corpus for English Microtext Normalization.*, **Satapathy R**, Singh A, Cambria E.

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

Accepted in COGN. COMP. **2019**, *A Review of Shorthand Systems: From Brachygraphy to Microtext*, **Satapathy,R.**, Cambria, E, and Nanetti, A.

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

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

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

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

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

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