Prasanna Biswas

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EDUCATION

Master of Technology

Computer Science and Engineering Indian Institute of Technology Bombay July 2018 - July 2020 CGPA: **7.69***

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Bachelor of Technology

Computer Science and Engineering V.E.S Institute of Technology, Mumbai July 2013 – July 2017 CGPA: **9.07**

Areas of Interest

Machine Learning. Sentiment and Emotion Analysis.

Data Structures and Algorithms.

MASTER'S PROJECT AND SEMINAR

A Computational Model to Understand Emotions in Sarcasm

M. Tech Project

Jan 2020 - Present

Prof. Pushpak Bhattacharyya

- Objective: Emotion Recognition in Sarcastic sentences.
- Dataset Contribution: Previous works have extensively studied sentiment and emotion in language, while the relationship between sarcasm and emotion has been largely unaddressed. Hence, created a benchmark dataset 'emo-UStARD', of sarcastic and non-sarcastic videos, that is annotated with 8 primary emotions, and also arousal and valence levels to get the intensity of emotions.
- Conducted a series of experiments exploring every aspect of textual modality using Encoder based classifier with BERT word Embeddings.
 - Single-Label vs Multiple-Label: Accuracy dropped by 50% going from single-label to multi-label which concludes that multi-label setting to be more challenging, due to the conflicting emotions that are present in sarcastic sentences.
 - Impact of Additional Information: Observed a slight increase in subset accuracy when sarcasm label along with utterance was passed instead of just utterance.
 - **Higher Level Emotions**: Used predicted arousal values and primary emotion for the utterances which helps to find the intensified and combination emotions present in the sentence.
- Current Work: Building a web portal for this project. Leveraging audio and video modalities present in the proposed data set to improve recognition rates of this task.
- Submitted to EMNLP 2020.

Investigating importance of Emojis in Sarcasm Detection

 $M. Tech\ Project$ $June\ 2019\ -\ Dec\ 2019$

Prof. Pushpak Bhattacharyya

• Objective: To analyze the importance of Emoji modality in Sarcasm detection from text.

- Implemented a basic **LSTM-NN** classifier and a **fasttext** classifier as a baseline for sarcasm detection problem which had text with emojis.
- Conducted **experiments** on these classifiers by placing **emojis** at **different positions** in the text for analysing the positional importance of emojis.
- Incorporated the features from **knowledge graphs** i.e. **SentiWordnet** and **EmojiNet**. The accuracy for the tweets increased and the values were close to 90%. The importance of emojis was then supported by LIME analysis.

^{*} as on Jan 1, 2020

Emotion Analysis from Text

Prof. Pushpak Bhattacharyya

M. Tech Seminar Jan 2019 – May 2019

- Conducted a literature survey on foundations of **Sentiment and Emotion Analysis**. Studied various **representations of emotions**, emotion lexicons, and their applications in the real world.
- Explored **open resources** available for emoji, emoji interpretation, **emoji sense similarity**, and their combined applications with **deep learning** in the field of Emotion Analysis.

Course Projects

Insincere Question detection in Quora

Prof. Sunita Sarawagi Gupta, Spring 2019

- Implemented various methods of encoding using RNNs, CNNs with pooling and self-attention.
- Used and tested state-of-the-art **BERT and ELMo** to obtain question representations.Best model was obtained using RNNs with self-attention layer and ELMo features, with an F-score of **0.60**.

Neural Network based classifier from Scratch

Prof. Preethi Jyothi, Autumn 2018

• Implemented a **Neural Network model** where the number of **hidden layers**, number of **hidden nodes** and **activation function** of each layer can be **customized**. Conducted experiments using different combinations. Relu with 2 hidden layers performed the best.

Movie Recommendation System

Prof. Ganesh Ramakrishnan, Autumn 2018

• Performed **collaborative based filtering** using user-preference, movie-feature and ratings matrices. Mean-centered the data and implemented **Linear Regression from scratch** to model the function between user preferences and movie features.

Implementation of LSM Tree

Prof. S. Sudarshan, Spring 2019

- Objective: To implement a LSM tree designed to provide low-cost indexing for files experiencing a high rate of inserts over an extended period.
- Implemented code for **B-Trees** having functions for **inserting**, **node-splitting** and **traversing** and extended it to adapt the functionalities of LSM tree.

EXTRA-CURRICULAR

Worked at Zilla Parishad School

September 2017

· Guided **needful students at Zilla Parishad School**, Dombivali for a week. Helping them in Drawing, Hand-crafts, Basic Mathematics and visualize concepts in Science.

Position of Responsibility

Social Secretary (Post-Graduate), CSE

July 2019 - Ongoing

· Coordinate with Institute and Department authorities for Cultural related events. Worked with CSE Council in organizing all department events and designing t-shirt, hoodies, and posters.

Interview Coordinator

December 2018

· Coordinated with a team of 250+ members for interviews of 1400+ students and assisted in conducting Pre-placement Talks and Tests for 10+ firms.

TECHNICAL SKILLS

Programming Languages Technologies C/C++, Python, Prolog, Java (Limited Exposure)

PyTorch, Knowledge Graphs, Interpretability tools, Django, Git, LATEX.

ACHIEVEMENTS

- Secured 4^{th} position within the campus in **Flipkart GRiD** contest 2019.
- Won 2nd prize in Inter-College Project Competition 2018 at St.Francis Institute of Technology.
- Participated in National-Level Project Competition ELECTROWIZ 2018.
- Participated in Group Dance competition of PG Cult 2019.