Prasanna Biswas

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Education

Master of Technology
Computer Science and Engineering — *July 2018 – July 2020*
Indian Institute of Technology Bombay — *CGPA:* ***8.43***

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

Areas of Interest

Machine Learning. Sentiment and Emotion Analysis. Data Structures and Algorithms.

Publications

A Computational Model to Understand Emotions in Sarcasm (Under Review)
Prasanna Biswas, Anupama Ray, Pushpak Bhattacharyya

- Submitted to EMNLP'2020.

Home Automation Using Panoramic Image Using IoT
Nupur Giri, Chetan Gupta, Mohit Choithwani, Prasanna Biswas, Piyush Gidwani

- Published in 2018 International Conference on Recent Innovations in Electrical, Electronics Communication Engineering (ICRIEECE).
- Link to the Publication.

Master's Project and Seminar

A Computational Model to Understand Emotions in Sarcasm — *M.Tech Project*
Prof. Pushpak Bhattacharyya — *Jan 2020 – July 2020*

- **Objective**: Emotion Recognition in Sarcastic sentences.
- **Dataset Contribution:** We 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.

Investigating importance of Emojis in Sarcasm Detection — *M.Tech Project*
Prof. Pushpak Bhattacharyya — *June 2019 – Dec 2019*

- **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.

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	C/C++, Python, Prolog, Java (Limited Exposure)
Technologies	PyTorch, Knowledge Graphs, Interpretability tools, Django, Git, LaTeX.

Achievements

- Secured 4^{th} position within the campus in **Flipkart GRiD** contest 2019.
- Won 2^{nd} 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.