

# BITS F312: NEURAL NETWORKS AND FUZZY LOGIC

## COURSE PROJECT: MEME SENTIMENT ANALYSIS

### **Dataset Description:**

Link to the training dataset is [here](#)!

### **Abstract**

Information on social media comprises of various modalities such as textual, visual and audio. NLP and Computer Vision communities often leverage only one prominent modality in isolation to study social media. However, computational processing of Internet memes needs a hybrid approach. The growing ubiquity of Internet memes on social media platforms such as Facebook, Instagram, and Twitter further suggests that we can not ignore such multimodal content anymore. This task has ~8K annotated memes - with human annotated tags namely sentiment, and type of humor that is, sarcastic, humorous, or offensive.

### **The Multimodal Social Media**

Memes is one of the most typed English words (Sonnad, 2018) in recent times. Memes are often derived from our prior social and cultural experiences such as TV series or a popular cartoon character (think: One Does Not Simply - a now immensely popular meme taken from the movie Lord of the Rings). These digital constructs are so deeply ingrained in our Internet culture that to understand the opinion of a community, we need to understand the type of memes it shares.

## **Online Hate - A brutal Job**

The prevalence of hate speech in online social media is a nightmare and a great societal responsibility for many social media companies. When malicious users upload something offensive to torment or disturb people, it traditionally has to be seen and flagged by at least one human, either an user or a paid worker. Even today, companies like Facebook and Twitter rely extensively on outside human contractors from start-ups like CrowdFlower, or companies in the Philippines. But with the growing volume of multimodal social media it is becoming impossible to scale. The detection of offensive content on online social media is an ongoing struggle. Detecting an offensive meme is more complex than detecting an offensive text – it involves visual cue and language understanding. This is one of the motivating aspects which encourages us to propose this task.

### **The Task**

Task A- Motivation Classification: Given an Internet meme, the first task is to classify it as motivational or non-motivational meme. We presume that a meme is not neutral.

Task B- Sentiment Classification: Given an Internet meme, the system has to identify the type of sentiment expressed. The categories are positive, negative, very\_positive, very\_negative and neutral.

Task C- Offensiveness: The third task is to quantify the extent to which a meme is offensive.

## **Readings (might be beneficial):**

Knowledge about the following topics might help you improve your model.

1. Multimodal Sentiment Analysis
2. [Will be updated, check back regularly]

Don't come up complex models right from the offset though, use simple models in the beginning and then keep improving your model. Remember Occam's razor!

## **Submission:**

**Deadline: 22th November, 2019 7 PM**

You will be required to submit a small write-up on how you ended up with your final model. Make it a point to record your loss plots and accuracies for all your hyperparameter configurations. You'll be able to compare your models and it'll help you submit a sound write-up.

Talk to us about any new ideas you have for your model, we might be able to guide you. You may receive bonus marks for your creativity and thought, provided you are able to justify it (empirically or otherwise).

**Note:** You are requested not to put the code for your project on public platforms like Github / Gitlab. Also, the dataset used in this project is not a publicly available one, so you're legally not allowed to use it for any purposes other than this project.

**Note2:** You might have to clean/preprocess the data, the methods of which should be mentioned thoroughly in the report.

**A BIGGER NOTE :** We will be manually going through your code on the day of submission. For this, each team will be allotted a 20 min time slot in which they have to explain the model to us. This will be followed by us manually feeding in the test set and obtaining your final score. Please be assured that any kind of plagiarism or malpractice will force us to award you 0 in Project and Assignment component.

Submit on this [drive link](#) a zip file named as team number. It should contain a **maximum of two model files, one submission file and your write-up.**

### ***Instructions for submission.py***

In submission.py, write code to:

1. Load the test metadata csv '**test\_meme.csv**'. It has the same fields as training data, except for the last 5 columns. The test data will be available with us on submission day.
2. Your **submission.py** file must load the model file from the folder, use the **metadata and/or the meme** to load the text and the meme into your model and generate a predicted answer.
3. Finally, it should store the predictions in a **csv file** named **solution.csv** which should have 3 output columns.

### **Evaluation:**

This project accounts for **20%** of your final grade.

The model you submit will be tested and the final marks you obtain will be a weighted function of all **accuracies of output columns.**

We'll test your models ( you're allowed to submit 2 ) and show you your accuracy score. You can select your final model based on that.

## **FAQs**

( This section will be updated regularly. Please take a look at this section before asking a doubt on the [form](#). The instructor/TA will not respond to any queries on PM/mail. )