CS 109B: Final Project
Nicholas Stern, Lipika Ramaswamy, Anthony Rentsch
Note: We are ok with other groups using this topic for their projects.

NLP Meme Generation

Abstract

At face value, memes are iconic pictures or short clips paired with funny captions that spread like wildfire on social media. Avid internet users, however, can advocate that memes are actually a medium for expression that encapsulates the nuances of shared experiences with humor. Usually memes reference pop culture, such as a clip from a show, an animated character, or a celebrity interview, but there are plenty of memes that transcend categorization. Somewhat of an artform, they can range from simple and intuitive, to completely bizarre, as is exemplified below:

Ultimately, our question is: can we develop AI to capture this element of human behavior? Our goal is to create a model that can generate captions for user-provided images using NLP methods and supervised learning.

Possible Data Sources

1. Reddit
    a. r/wholesomememes (link)
    b. r/lolcats (link)
    c. r/memeeconomy (link)

2. Nathan Pyle's "Strange Planet" comics (link)
3. Meme Generator (link)
4. Know Your Meme (link)

References

1. *Dank Learning: Generating Memes Using Deep Neural Networks* (link)
    a. Scraped data from Meme Generator - 400,000 memes representing about 3,000 base images with different captions
    b. Uses Inception-v3 network to return image embeddings and then uses an attention-based LSTM model with deep layers to create captions
    c. Compares model by surveying humans as to whether captions are human-made or model-made
    d. Github: https://github.com/alpv95/MemeProject
2. *I Can Has Cheezburger?: A Nonparanormal Approach to Combining Textual and Visual Information for Predicting and Generating Popular Meme Descriptions* (link)
    a. Scrape data from Meme Generator and CHEEZburger (datasets appear to be available for download through author's webpage)
    b. Modeling strategy - nonparanormal approach
3. *Show and Tell: A Neural Image Caption Generator* (link)