AC209b Final Project
Spring 2019

Meme Caption Generation

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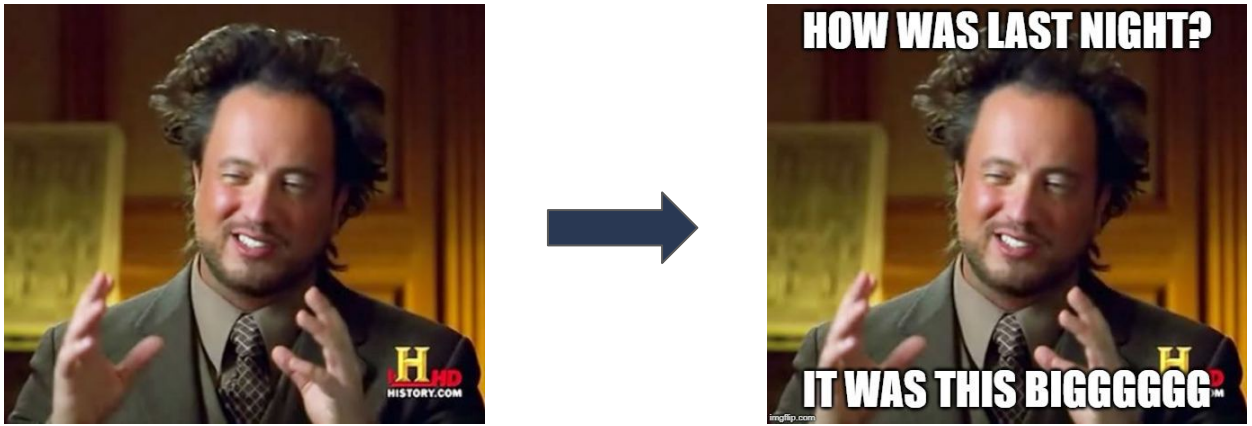
Group 38

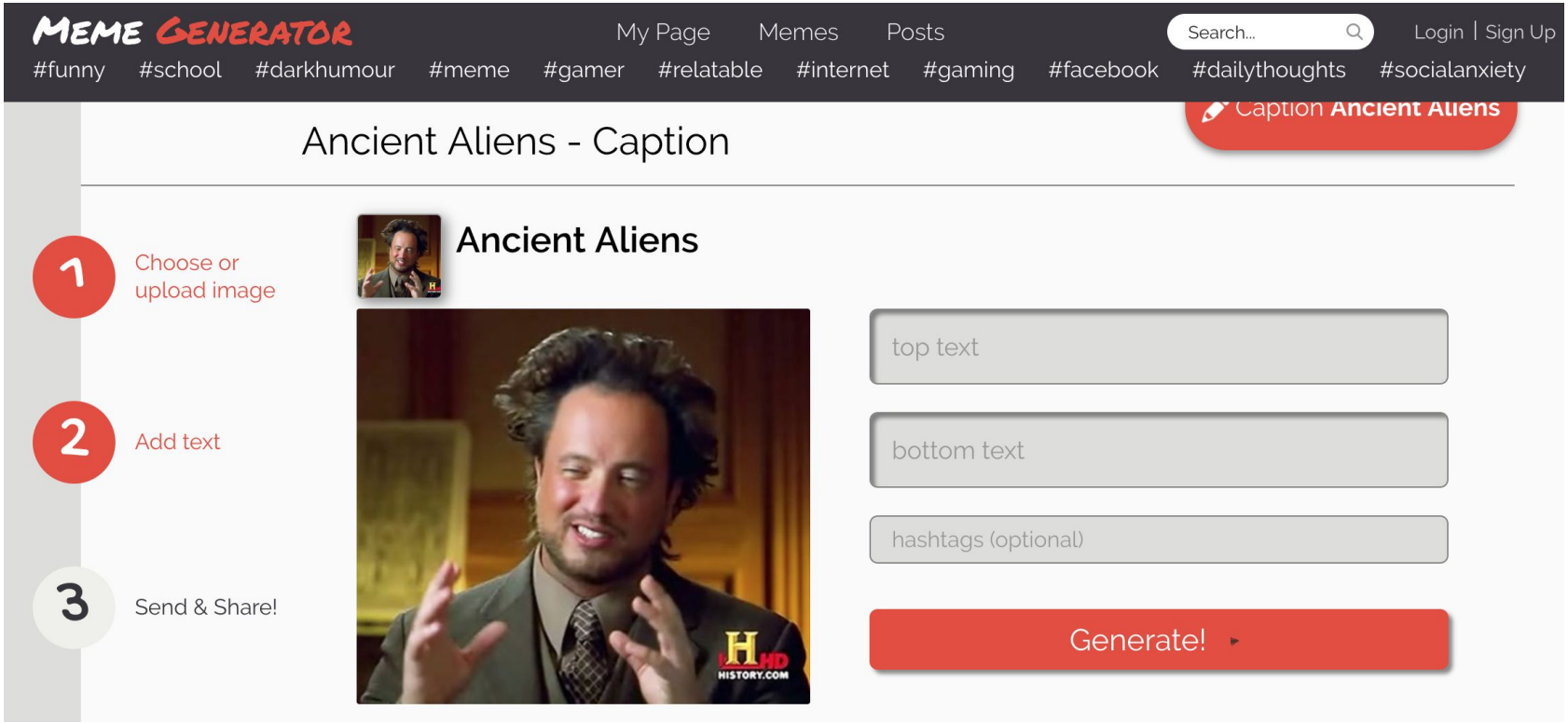
Project Overview

- What is a Meme?
- **Goal:** Train a model to caption image with funny text



2

Data


MEME GENERATOR
My Page
Memes
Posts
Search...
Login | Sign Up
#funny
#school
#darkhumour
#meme
#gamer
#relatable
#internet
#gaming
#facebook
#dailythoughts
#socialanxiety
Caption Ancient Aliens
Ancient Aliens - Caption
1
Choose or upload image
2
Add text
3
Send & Share!
Ancient Aliens
HISTORY.COM
top text
bottom text
hashtags (optional)
Generate!

Data

Pre-Processing

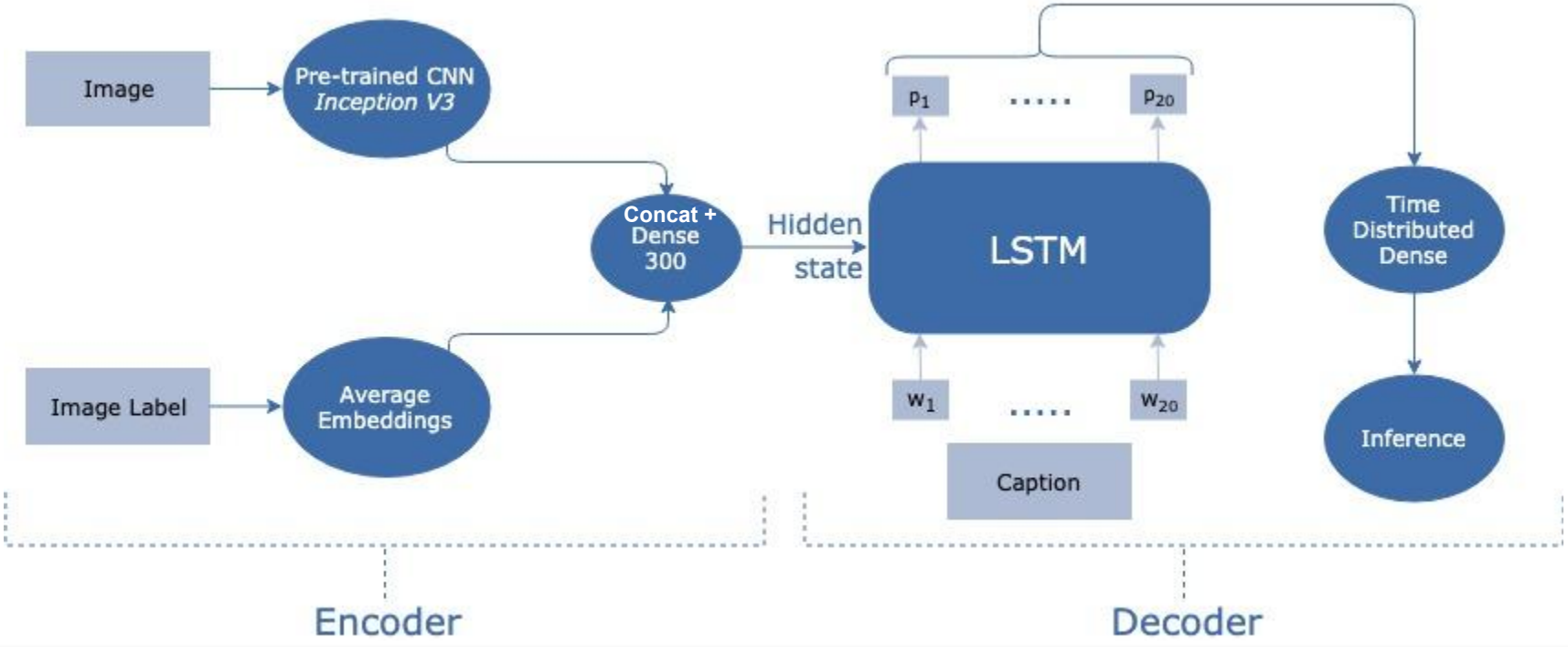
- Scrape data from memegenerator.net
- Tokenize captions + pad: <sos>, <break>, <eos>
- Global Vectors for Word Representation (GloVe) embeddings
- **Filter offensive captions + captions not written in English**

Final Data

- 70,122 unique captions
- 805 base images
- 36,706 unique words

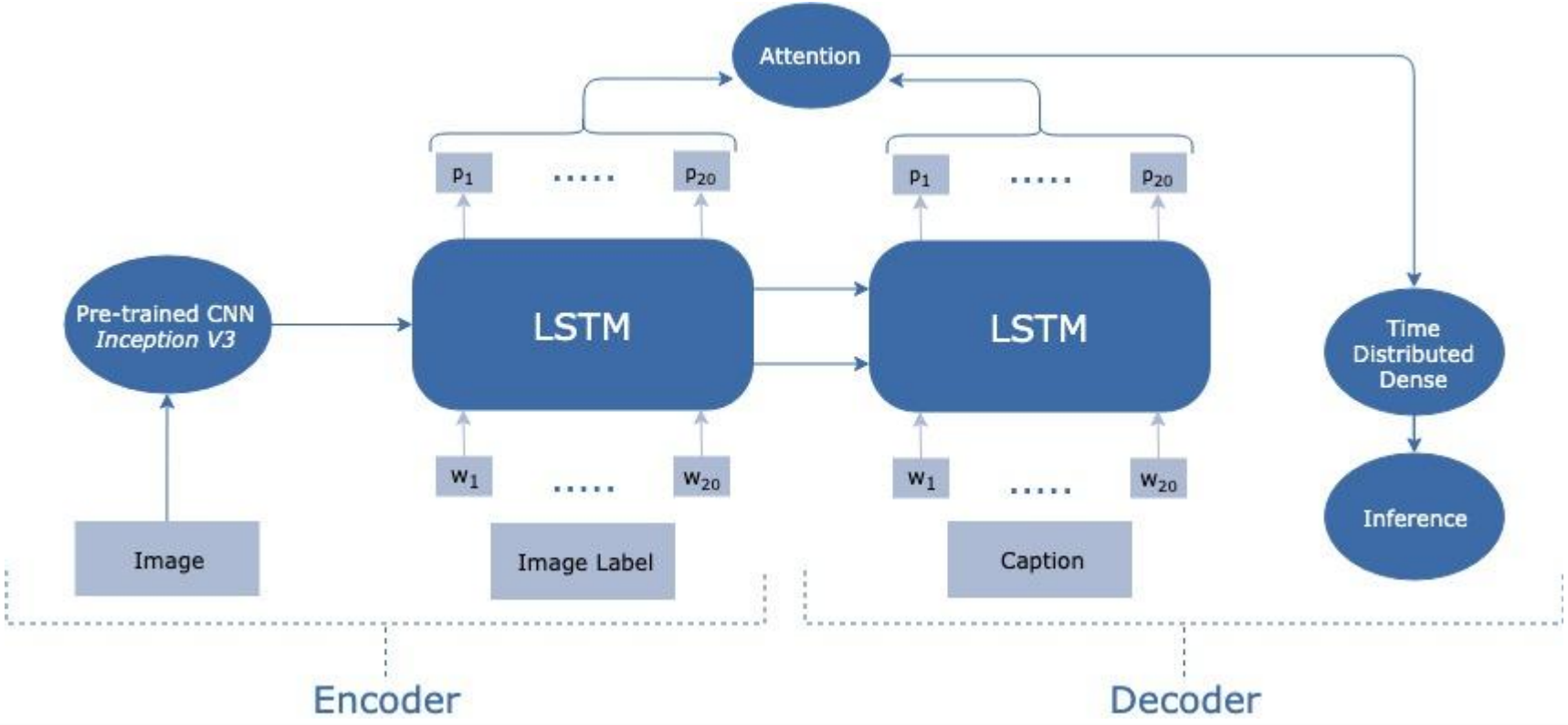
Model Architecture

(Version 1)



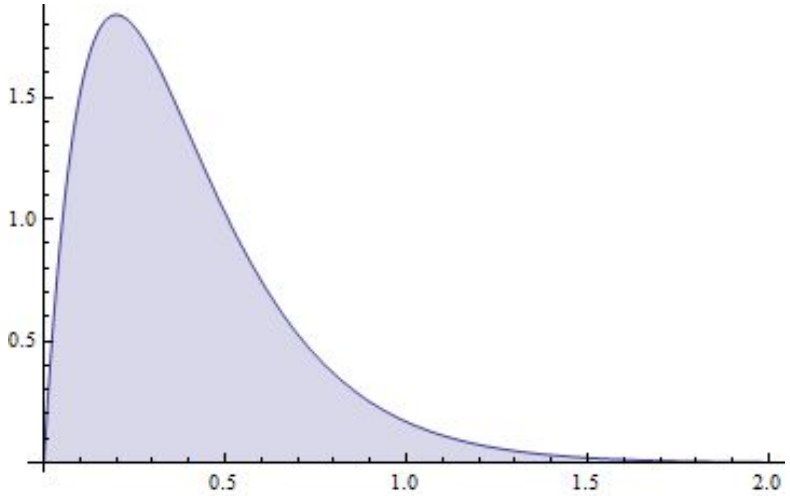
Model Architecture

(Version 2: Attention)



Inference

- Greedy Search
  - Choose most probable word
- Beam Search
  - Select top *k* most probable
  - Choose one



Evaluation

- How to evaluate machine generated text?
  - BLEU, ROUGE, METEOR, WMD, SPICE...
- BLEU
  - Matches n-grams between machine text and human text
  - Essentially a measure of precision of the machine text

Example:

Machine: “This is legit”
Human Caption 1: “This is an apple”
Human Caption 2: “This is an example of BLEU”

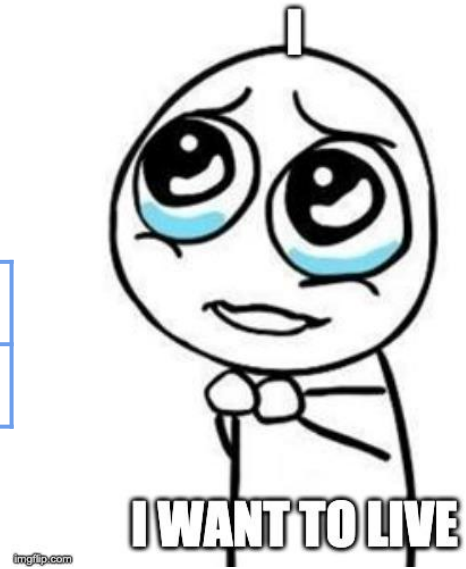
1-gram	2-gram	3-gram
1/3	1/2	0/1

Results

BLEU

V1	.211
V2	.176

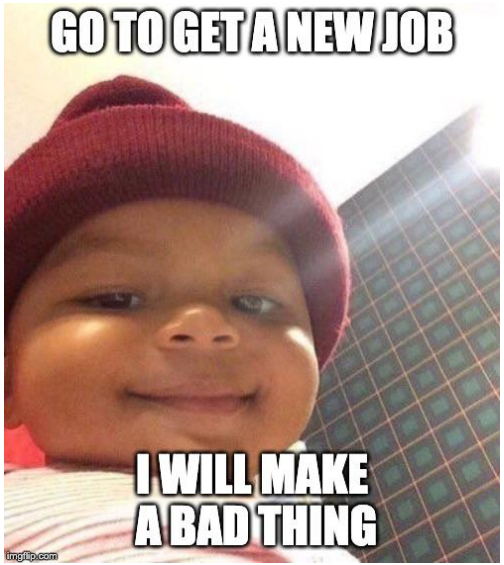
Version 1

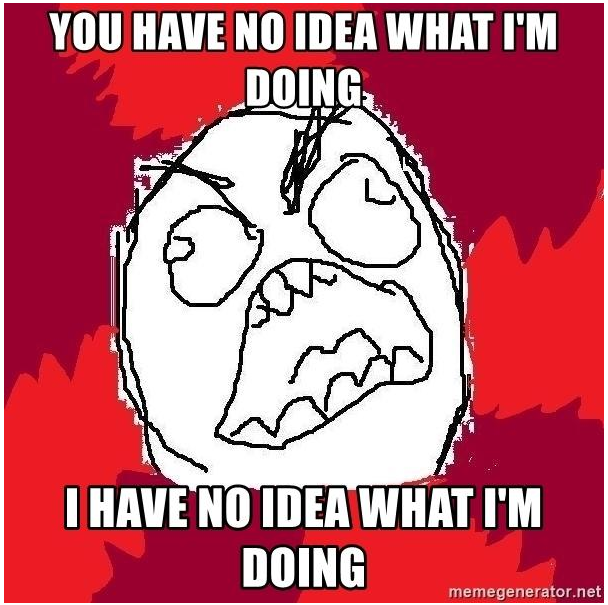


Version 2

Results


THE FACE WHEN YOU ARE THE FACE
AND I JUST WAIT FOR THE MONEY
imgflip.com


GO TO GET A NEW JOB
I WILL MAKE A BAD THING
imgflip.com


YOU HAVE NO IDEA WHAT I'M DOING
I HAVE NO IDEA WHAT I'M DOING
memegenerator.net

Results


GO HOME
AND I HAD A BAD TIME
imgflip.com


ONE
CAN'T STOP LOOKING FOR THE PEOPLE
imgflip.com

References

- Peirson, V., Abel, L., & Tolunay, E. M. (2018). Dank learning: Generating memes using deep neural networks. *arXiv preprint arXiv:1806.04510*.
- Vinyals, O., Toshev, A., Bengio, S., & Erhan, D. (2015). Show and tell: A neural image caption generator. In *Proceedings of the IEEE conference on computer vision and pattern recognition* (pp. 3156-3164).
- Memegenerator.net