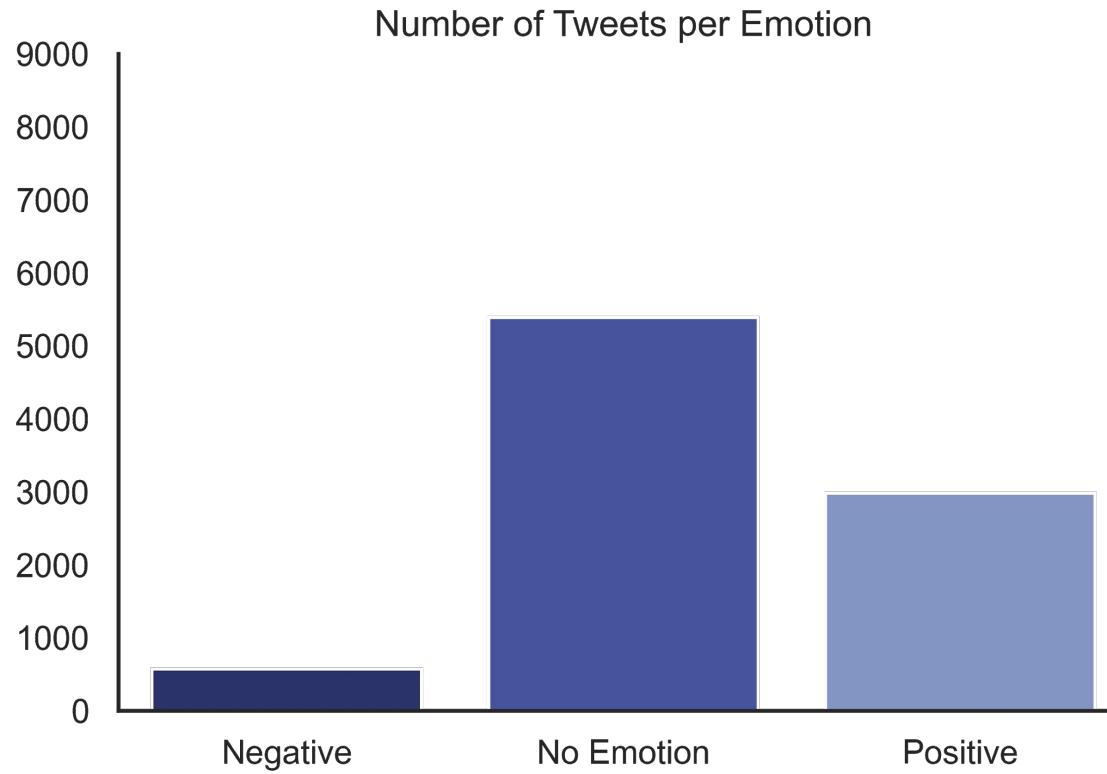


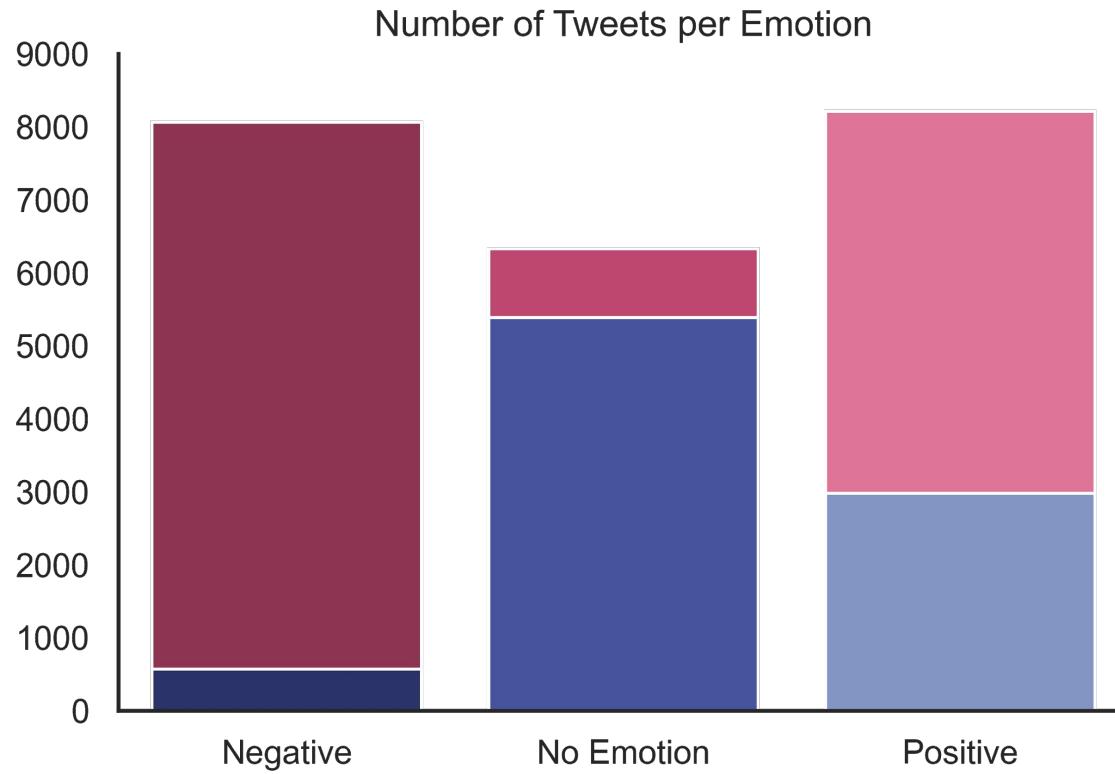
The Goal:

- Product flexible
- One product, or comparison between several
- Predicts sentiment relative to product, rather than absolute sentiment

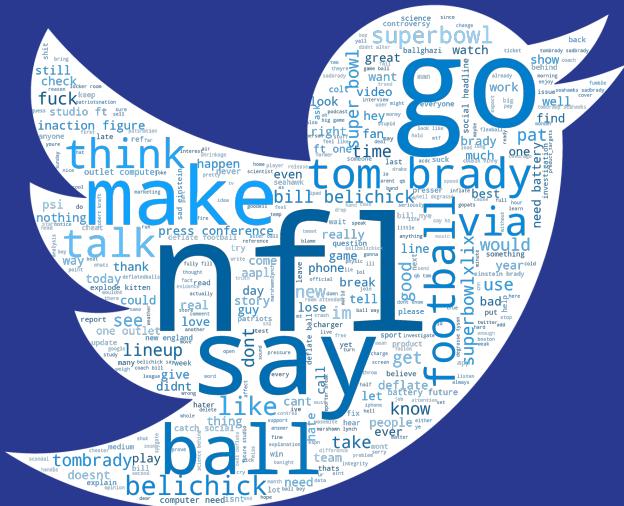
Dealing with Class Imbalance



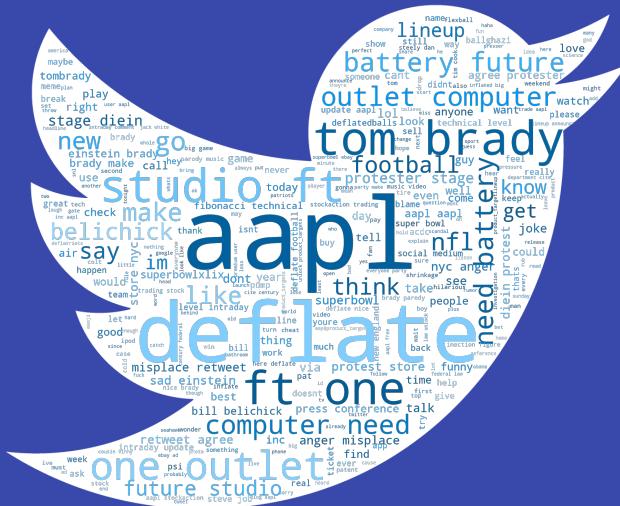
Dealing with Class Imbalance - After



Negative Sentiment



Neutral Sentiment



Positive Sentiment



Feature Engineering

Apple

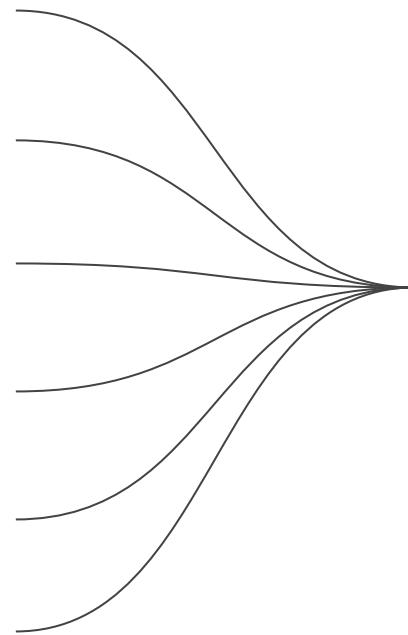
iPhone

iPad

Google

Android

etc.



product_target

Data Preprocessing

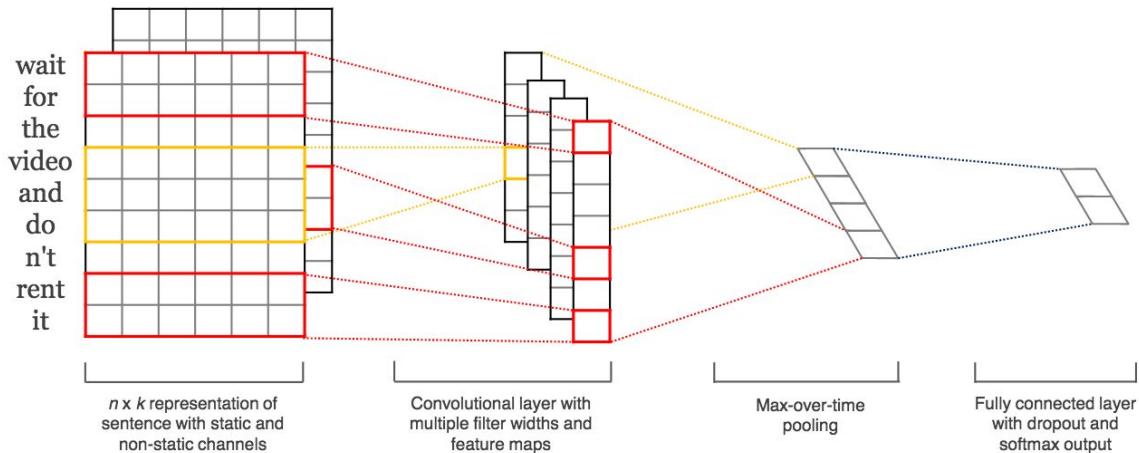
@wesley83 I have a 3G iPhone. After
3 hrs tweeting at #RISE_Austin, it was
dead! I need to upgrade. Plugin
stations at #SXSW.



@wesley83 I have a 3G
product_target: After 3 hrs tweeting
at #riseaustin; it was dead! I need to
upgrade- plugin stations at #sxsw-

Embedding + CNN

Convolutional layers apply filters to the features generated by the embedding layer



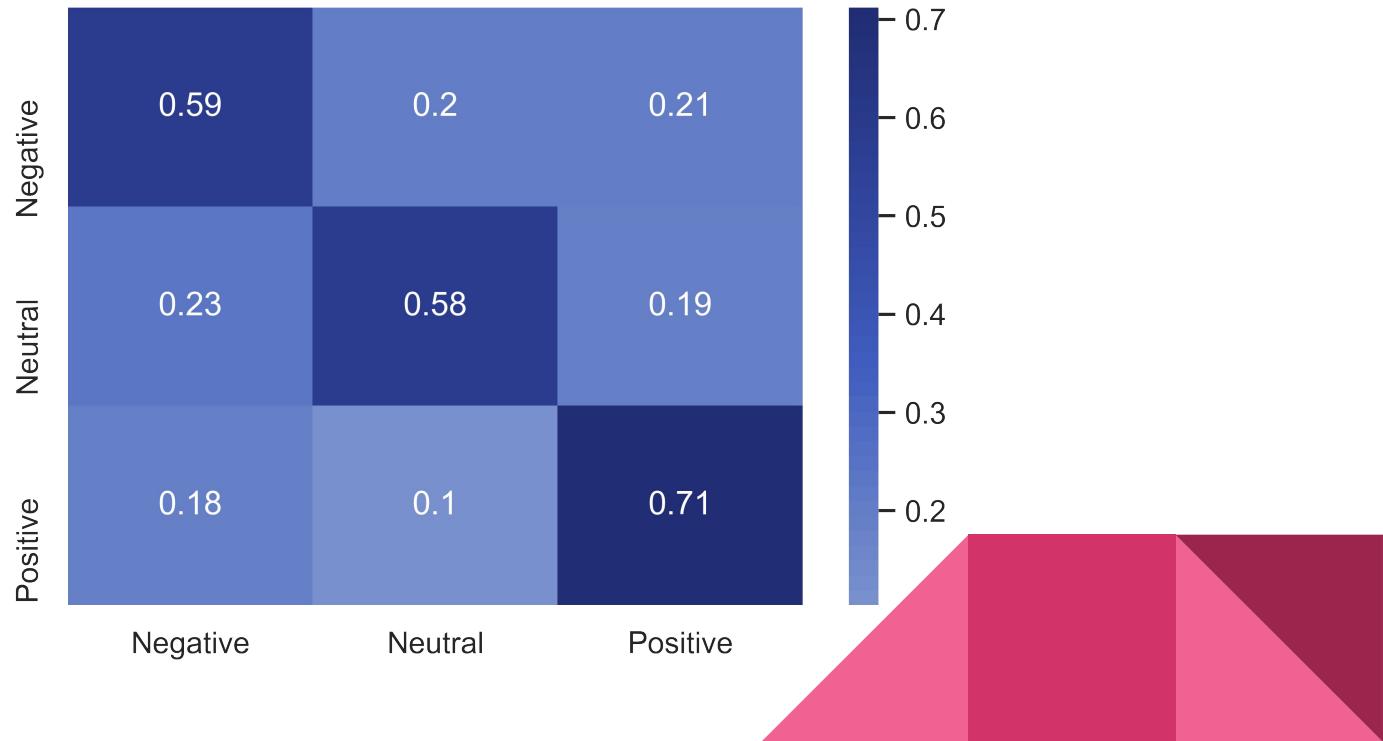
Embedding + CNN results

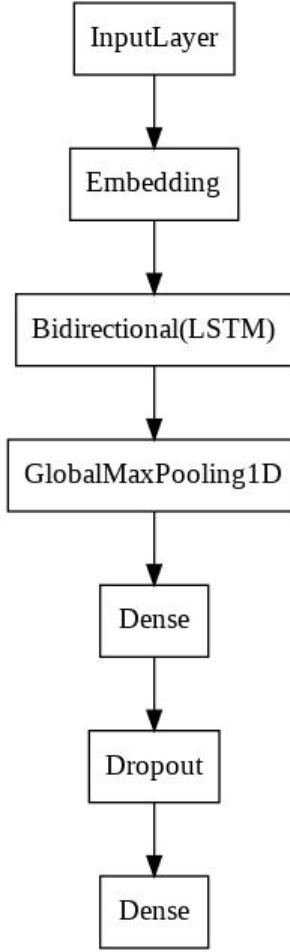
Tweet Prediction Accuracy : 62.67%

Negative: 59%

Neutral: 58%

Positive: 71%





Long - Short Term Memory Recurrent Layer Architecture

Bidirectional layers read both ways!

RT @nick_thaAnimal: If it comes down to it I'll go James Bond mode #Coachella2015

Bidirectional layers read both ways!

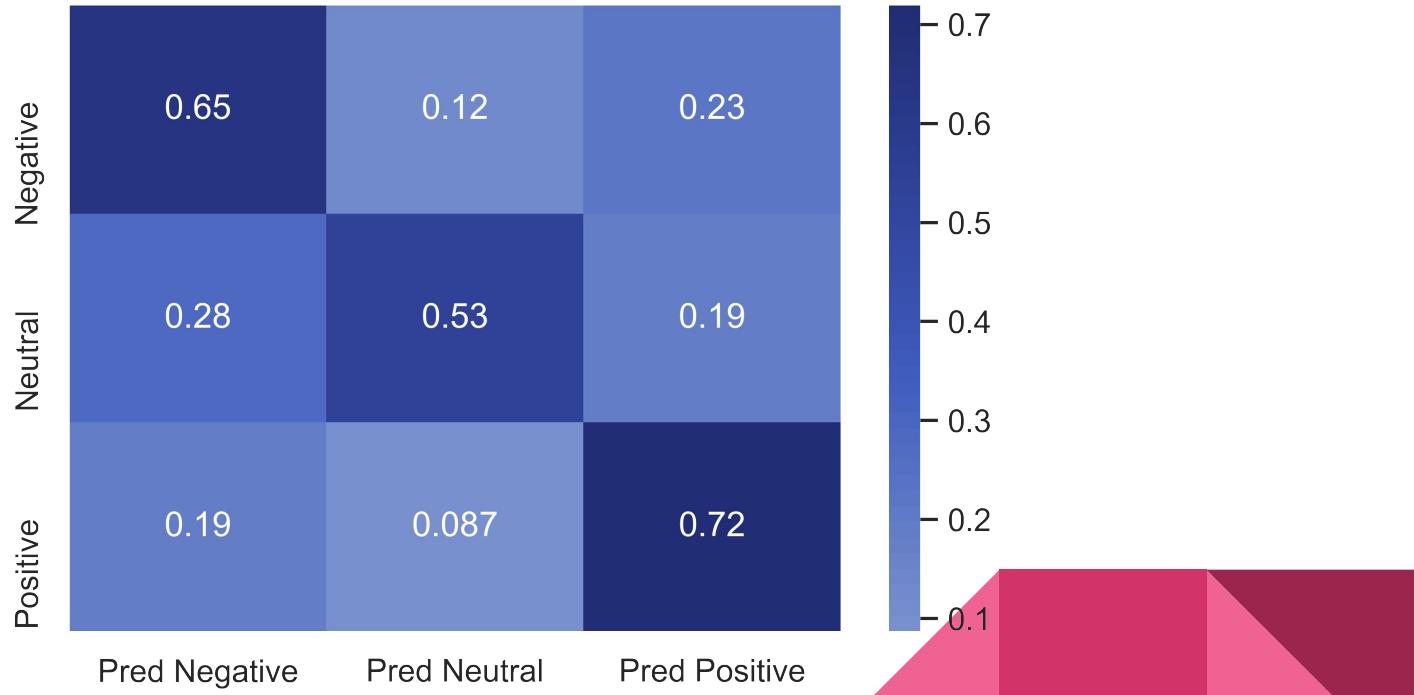
Long-Short Term Memory Recurrent Neural Network

Tweet Prediction Accuracy : 64.2%

Negative: 65%

Neutral: 53%

Positive: 72%



Best Model: Logistic Regression

Tweet Prediction Accuracy : 66.0%



Sample Logistic Regression Model Predictions

		tweet	product	true emotion	predicted emotion
1	@jessedee Know about @fludapp ? Awesome iPad/iPhone app that you'll likely appreciate for its design. Also, they're giving free Ts at #SXSW		iPad or iPhone App	Positive emotion	Positive emotion
1769	#SXSW 2011: Novelty of #iPad news apps fades fast among digital delegates {link} via @mention		iPad or iPhone App	Negative emotion	Negative emotion
8981	I think my effing hubby is in line for an #iPad 2. Can someone point him towards the line-up for wife number #2. #sxswi #sxsw		iPad	Negative emotion	Positive emotion

Final Words and Contact Information

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