

HurriHelp

A Hurricane Help
Twitterbot

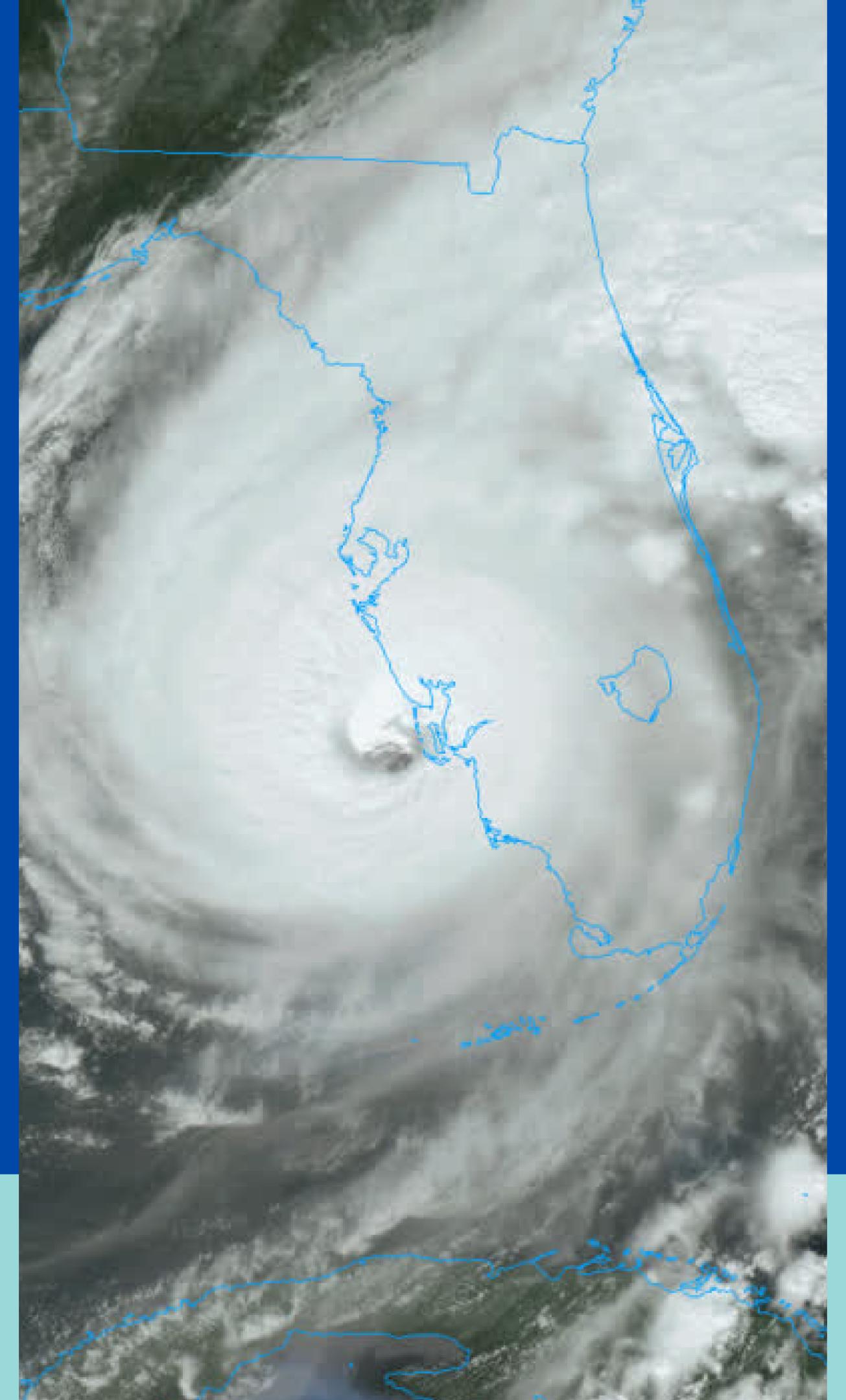


IMAGE BY NOAA, COLLEGE OF DUPAGE

LOUIS CASANAVE, FLATIRON SCHOOL



Hurricane Ian Boiler Plate:

- Category 4 Hurricane
- 152 Confirmed Dead in USA
- Over \$50 billion in Damages
- Millions without Power



Problem

Survivors Need Help Connecting to Existing Resources:

- National Disaster Distress Helpline
- FEMA

Solution

OUTREACH ON TWITTER:

USING MACHINE

LEARNING TO TARGET

FOLKS IN DISTRESS



Susan Who Believes in Science

@HardChick18 · [Follow](#)



#Ian #Sanibel #Missing #Help

We lost our home & everything in when
#Hurricanelan hit Sanibel (West Gulf Dr.). I
am searching for my parents ashes. They are
in this box, in a very heavy sealed bronze box
with the name Saner on it. I know it's a long
shot, but please share. 🙏💔



4:22 PM · Oct 1, 2022



HURRIHELP: A HURRICANE HELP TWITTERBOT



E

' Post    

@WindDance79 · [Follow](#)



I just went through an almost category 5 hurricane. 5 minutes away from ground zero.

After 9 days, we got our power back, and in 10, I got my Twitter/internet back.

It was horrific, it was the scariest night of our lives.

So grateful to still be here.

#Hurricanelan

9:52 PM · Oct 7, 2022

Hi! I'm HurriHelp, a hurricane helper bot. Here's some resources: National Disaster Distress Helpline (1-800-985-5990), for more info: <https://www.fema.gov/disaster/4673>"



Vision

Project Goals:

1. Collect Tweets Directly From Twitter
2. Analyze Sentiment
3. Analyze Word Frequency
4. Discernment Algorithm for HurriHelp ←
5. Deploy HurriHelp

Data

- 6773 original* tweets
- #Hurricanelan Hashtag
- 10/1/22-10/11/22
- 52% Positive
- 48% Negative
- Spam Users Removed*
- Data Direct from Twitter
- Sentiment from 3 different analyzers

FREE SUPPLIES for everyone in #englewood
#northport #venice #portcharlotte !!!

TODAY from 11am-3pm

473 S Indiana Ave Englewood, FL

We have food, water, gas, clothes, diapers/wipes, and more!

Please share with anyone who needs relief after #Hurricanelan



2:30 PM · Oct 8, 2022 from Englewood, FL

7 · Reply · Copy link · Read more on Twitter

Eugene Ingram Jr
@HighTechWriter · Follow

Bodies flood into #morgues: Overwhelmed #medical #examiners grapple with grim task after #Hurricanelan.

The following media includes potentially sensitive content.

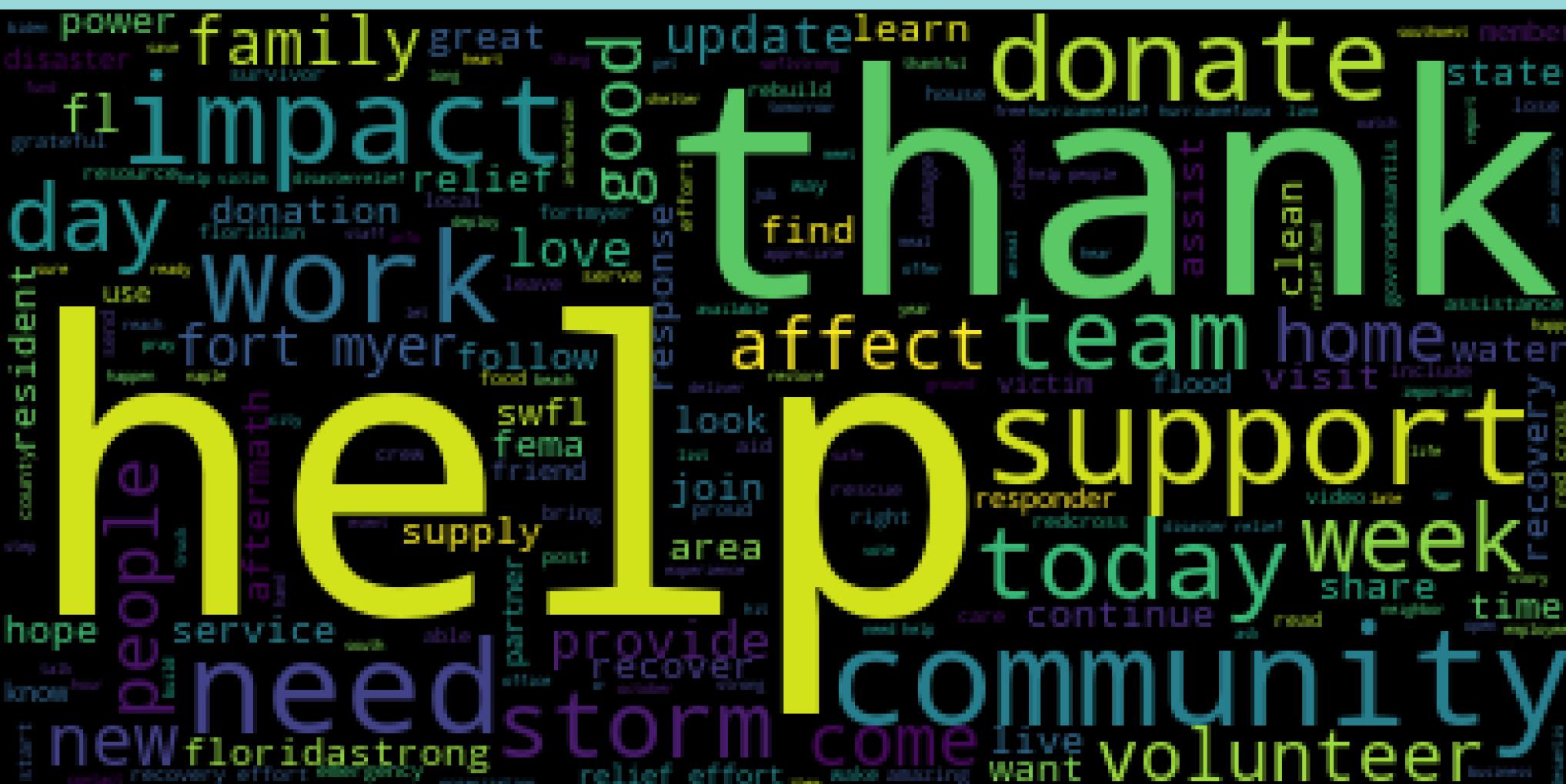
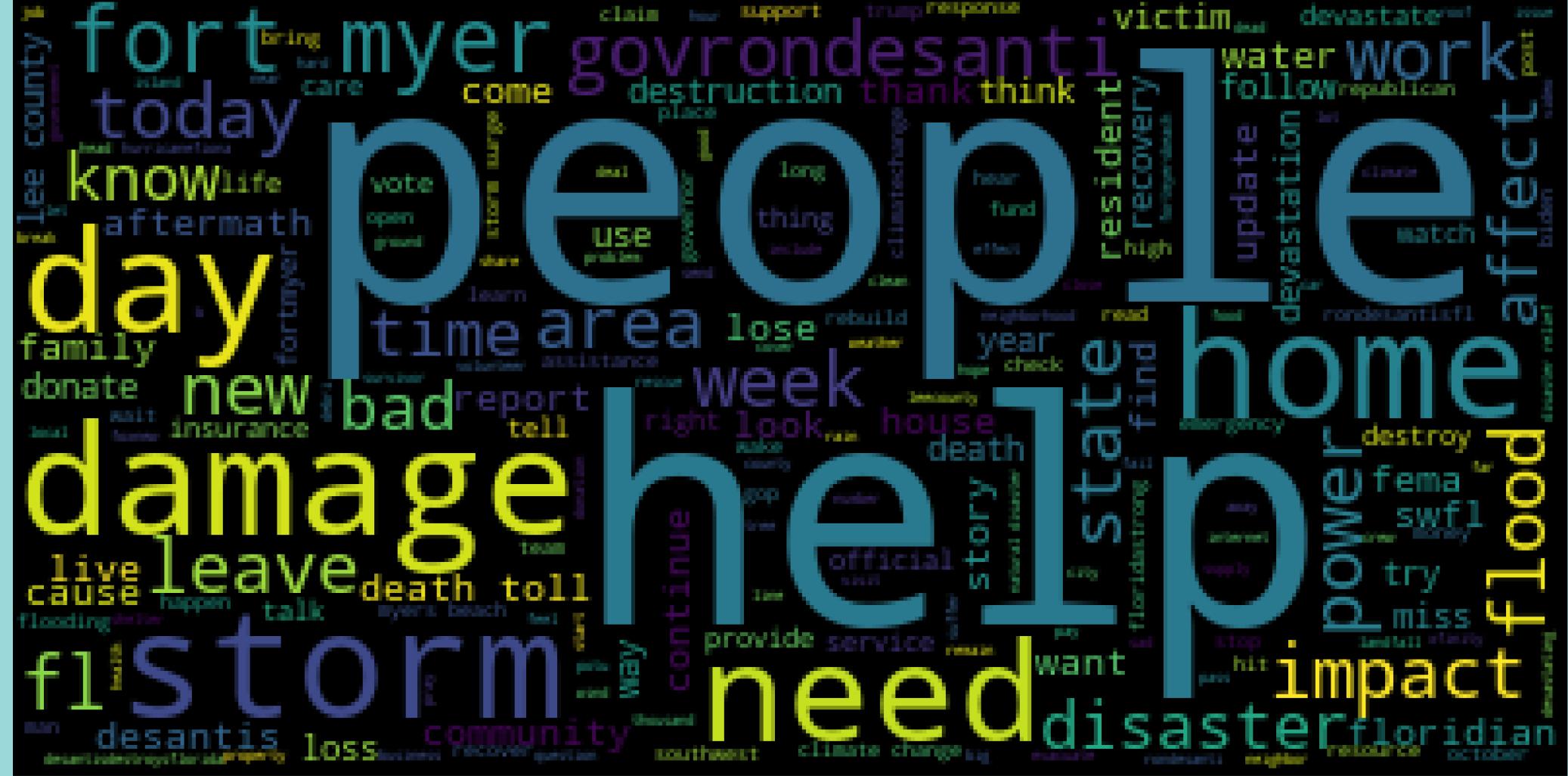
View

3:42 AM · Oct 9, 2022

Limitations and Bias:

- No Neural Networks for Classification
- Can't Distinguish Between Different Negative Emotions
- Assumes Target isn't Tweeting Repeatedly
- Very Small Sample Dataset
- Hurricane Ian Only

Negative Most Common Words

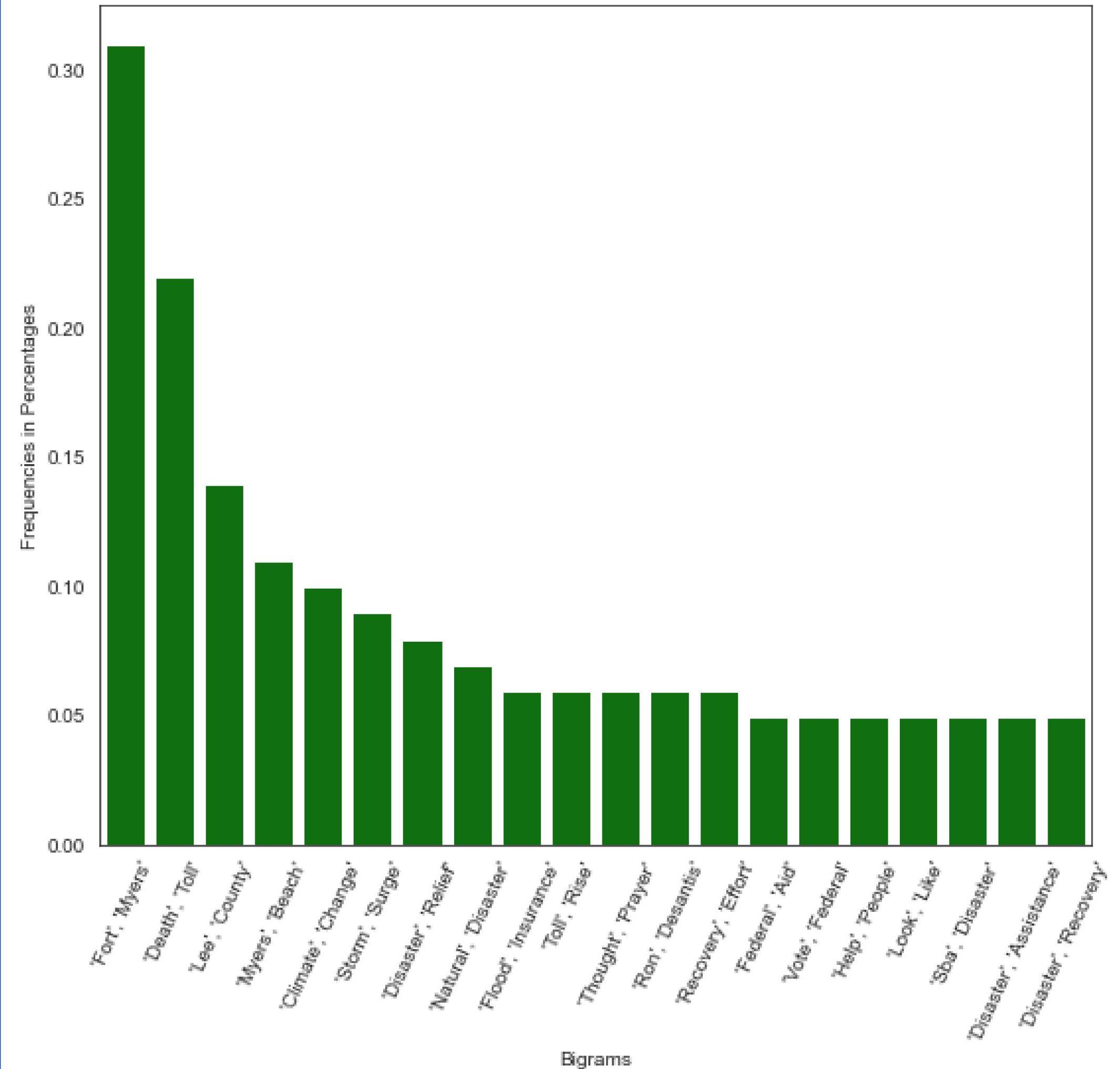


Positive Most Common Words

Negative Most Common Two-Word Combinations

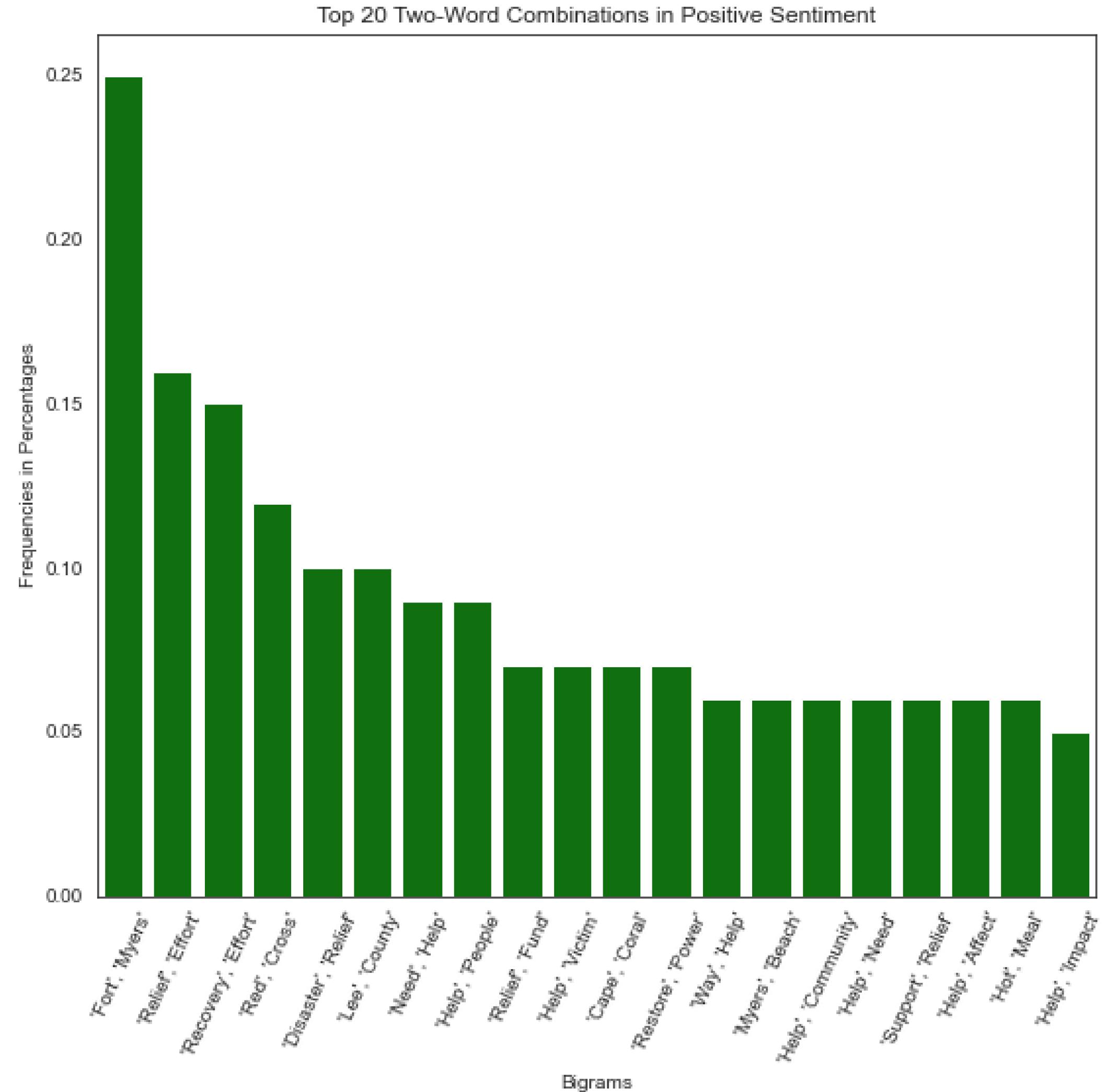
- Places: Fort Myers, Lee County, Myers Beach
- "**Disaster**"
- Monetary

Top 20 Two-Word Combinations in Negative Sentiment



Positive Most Common Two-Word Combinations

- Places: Fort Myers, Lee County, Cape Coral, Myers Beach
- "Help"
- Basic Needs



Modeling Goals:

1. Discern Negative Tweets
2. Only Reply to Negative Tweets

Methods

1. Remove: Emojis, Stopwords, Numbers, Punctuation
2. Split Data:
 - * 80% 5,418 rows training
 - * 10% 678 rows testing
 - * 10% 677 validation
- 1.8 Different Algorithms
2. Choose Best Performance
3. Analyze Results

Metrics

Precision

True Flagged

All Flagged

Model Types

- Random Forest
- XGBoost
- Naive Bayes
- Catboost

Vectorizers

- Frequency
- TFIDF
 - (term frequency inverse document frequency)

Results

**Catboost With Term Frequency
Precision: 80%***

HURRIHELP: A HURRICANE HELP TWITTERBOT



MsStaceyL Bracey

@thebraceygroup · [Follow](#)



Ron DeSantis decided to play god with [#immigrants](#)' lives by flying them to [#MarthasVineyard](#). This opened the [#Karma](#) door for [#Hurricanelan](#) to cause devastation to the people of [#Florida](#). People died bc of his [#evil](#) actions. [#KarmalsReal](#) [#HurricanelanUpdate](#) [#HurricanelanRelief](#)

5:45 PM · Oct 3, 2022

"Hi! I'm HurriHelp, a hurricane helper bot. Here's some resources: National Disaster Distress Helpline (1-800-985-5990), for more info: <https://www.fema.gov/disaster/4673>"



HurriHelp Needs Better Filters

Problem



Future Work

- Emotion Detection to Isolate "Sad" Tweets
- Topical Filters to Remove Unrelated Tweets
- Larger Data Set
- Scalability for Other Hurricanes
- Prototype Testing
- Twitter Exodus => TikTok next?

- HurriHelp NOT Ready
- Twitter not Secure
- FEMA to Concentrate on Spreading

Disaster Insurance Information

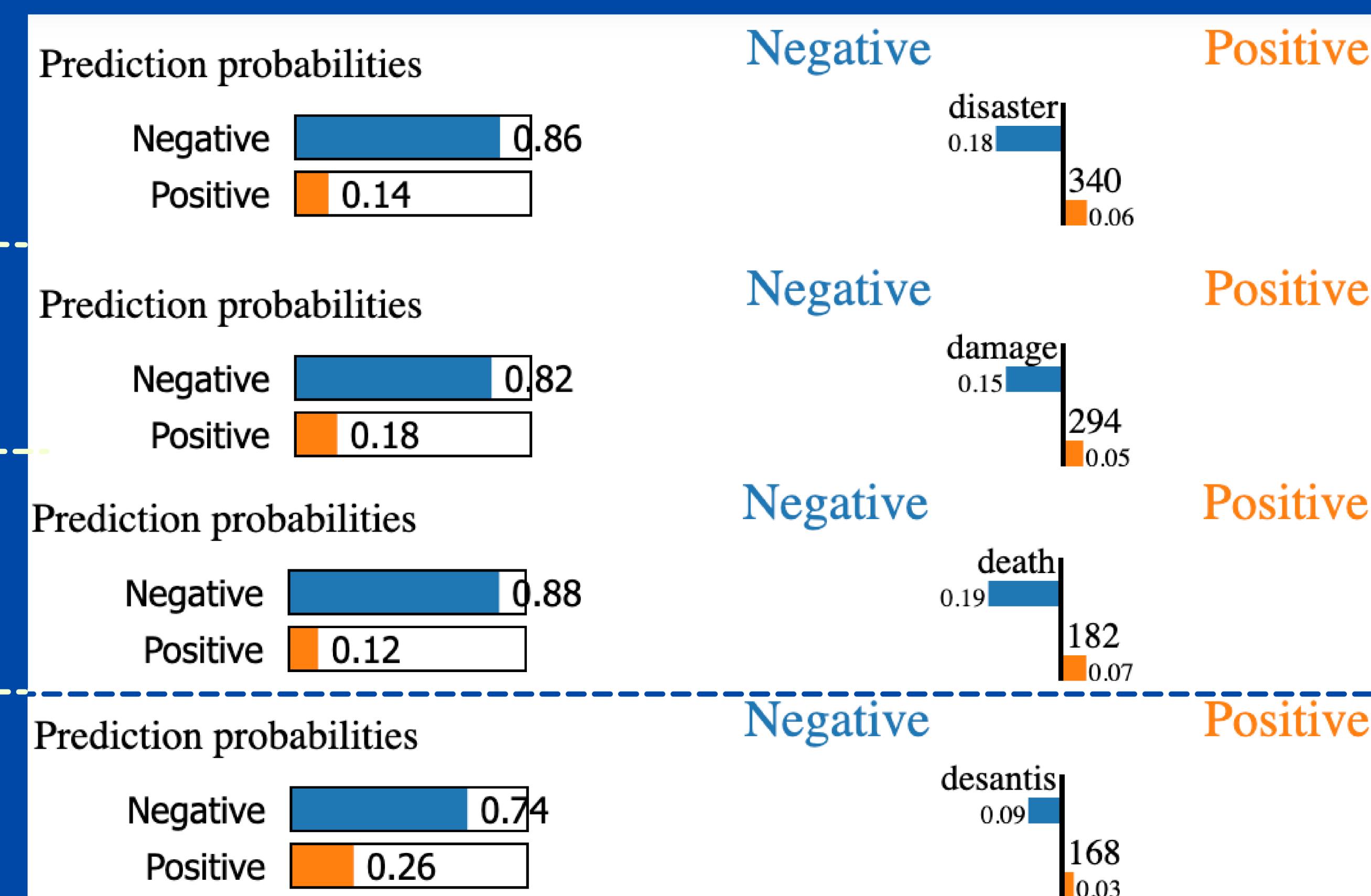
- Beware Three Ds of Doom in Tweets

Reccomendations



The Three D's of DOOM: Most Common Most Negative Words

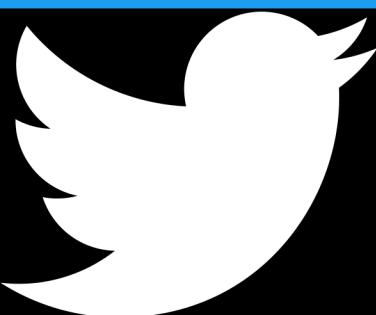
"DISASTER"
3rd most common, 86%



HONORABLE MENTION:
"DeSantis"
16th most common, 74%

HURRIHELP: A HURRICANE HELP TWITTERBOT

Thank you



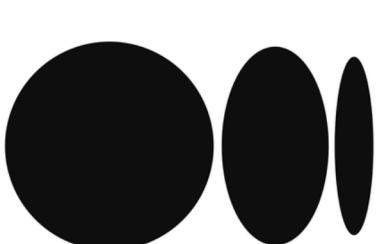
@Hurri_Help



github.com/casanave



linkedin.com/in/louis-casanave-78057aa0/e



medium.com/@ls.casanave

