How we can use Geotagged tweets in context of coronavirus.

### **Sources of location in tweets:**

There are three metadata sources for geo-referencing tweets:

**1. Tweet location**: tweets that are geotagged with an exact location or Twitter Place.

Use: ‘geo-tag’

This geo-tagging can be based on an exact location, assigned a Twitter Place. This provides the highest level of precision: latitude and longitude coordinates that define the location area.

Twitter Resources: [HERE](https://blog.twitter.com/2010/twitter-places-more-context-your-tweets) and [HERE](https://developer.twitter.com/en/docs/tweets/data-dictionary/overview/geo-objects).

Major problem: Very few Tweets are geo-tagged

- Exact location with long/lat coordinates: -85.7629, 38.2267

- Twitter Place with a name (“Louisville Central”) and four pairs of lat/long coordinates that define a “bounding box.”

**2. Mentioned location**: parsing the Tweet message for geospatial location.

This requires parsing the Tweet message for location names of interest, including nicknames. A second source of geospatial metadata are mentions of locations in the Tweet content. You can simply implement keywords or phrases to look for those terms. On the other hand, accuracy is likely lower, as it’s a less-reliable indicator of the user’s precise location.

- “If you are in Louisville, check out the pizza place off main”

- “I’m in Louisville and it is raining cats and dogs”

**3. Profile location**: parsing the account-level location for locations of interest.

Every Twitter Profile has a “Location” setting that can be filled out by the account owner. These Profile Locations provide the largest source of geospatial metadata. Not everyone provides this information.

- “I live in Louisville, home of the Derby!”

- “I live in Louisville, the one in beautiful Colorado.”

**The following are some of the ways in which geo-tagged tweets can be used:**

1. Identifying potential areas of contraction based on symptoms tweeted by people

* Pandemic Disease Monitoring Tool Using Twitter Data: <https://www.ukdiss.com/examples/pandemic-disease-monitoring-tool-twitter.php>

# The Use of Twitter to Track Levels of Disease Activity and Public Concern in the U.S. during the Influenza A H1N1 Pandemic: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0019467>

1. Identifying tourist stops to avoid:

Resources:

* Tweet-mapping Method for Tourist Spots Based on Now-Tweets and Spot-photos: <https://www.sciencedirect.com/science/article/pii/S1877050915023297>
* Measuring geographical regularities of crowd behaviors for Twitter-based geo-social event detection: <https://www.researchgate.net/publication/221589936_Measuring_geographical_regularities_of_crowd_behaviors_for_Twitter-based_geo-social_event_detection>

# Contribution of geotagged Twitter data in the study of a social group’s activity space: <https://journals.openedition.org/netcom/2529>

1. Identifying the health care legislation in a specific part of the country: Identify travel bans, social event organizing restrictions, other temporary legislation in place due to the spread of coronavirus at specific places.
2. Track people’s sentiments in different locations:

Sentiment analysis: Identify if people are joking, serious, scared, anticipating spread

Resources:

# Pandemics in the Age of Twitter: Content Analysis of Tweets during the 2009 H1N1 Outbreak: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0014118>

## [Emotion Intensities in Tweets](https://www.aclweb.org/anthology/S17-1007.pdf): <https://www.aclweb.org/anthology/S17-1007/>

1. Research social media communications to track disease outbreaks and provide necessary warnings

Resources:

* Preliminary Flu Outbreak Prediction Using Twitter Posts Classification and Linear Regression With Historical Centers for Disease Control and Prevention Reports: Prediction Framework Study: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6615001/>
* Text and structural data mining of influenza mentions in web and social media. Int J Environ Res Public Health: <https://www.mdpi.com/1660-4601/7/2/596>

1. Can identify which areas are not so aware about coronavirus: Can be used to spread awareness in areas not so aware

Resources:

# Using Twitter data to study the world's health:<https://blog.twitter.com/en_us/a/2015/twitter-data-public-health.html>

# Global Awareness Landscape for Ailments—A Twitter Based Microscopic View Into Thought Processes of People: <https://www.frontiersin.org/articles/10.3389/fdata.2019.00018/full>

1. Find potential areas based on travel of people: Identify other areas visited by people who visited coronavirus-hit areas.

Resources:

# From individual to collective behaviours: exploring population heterogeneity of human mobility based on social media data: <https://link.springer.com/article/10.1140/epjds/s13688-019-0212-x>

# Understanding Human Mobility from Twitter: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0131469>

# From individual to collective behaviours: exploring population heterogeneity of human mobility based on social media data: <https://link.springer.com/article/10.1140/epjds/s13688-019-0212-x/figures/1>

* Using Big Data for Human Mobility Patterns - Examining how Twitter data can be used in the study of human movement across space: <https://odr.chalmers.se/handle/20.500.12380/250155>

Getting extra location info from tweets:

# **You are where you tweet: a content-based approach to geo-locating twitter users:** [**https://dl.acm.org/doi/10.1145/1871437.1871535**](https://dl.acm.org/doi/10.1145/1871437.1871535)