

## Do Bots Behave The Same As Real Persons?

For this assignment, I have collected tweets from a bot and one real person. The bot account is @Scimirrorbot. After reviewing the tweets of this account, I realized, that this bot mirrors the behavior of the user who follows it. For this assignment, the person who's tweets I've fetched is @AstroKaren since the bot was mirroring her behaviour and tweeting about the same subjects as her.

I used TwitterAPI to extract the recent most 20 tweets per account, including the bot and the real people, into two different arrays and cleaned the data. To figure the difference between the bot behavior and the human account behavior, I used topic modelling analysis using Latent Dirichlet Allocation and vader's Sentiment Analysis as well. The results of modelling for the bots' tweets are as follows:

Topic 0:

astro\_doug iss scace took start spacesura spacex cland pack shate

Topic 1:

amp stat cooder space day spacex past thanks pace end

Topic 2:

amp astro\_doug ow pacture pack te wake tomato sulibucaras west

Topic 3:

amp astro\_luca look soyuz space allen complate took watch spacewalk

Topic 4:

launch start looking simplejoysonearth tarked right read toon suthern weet

Topic 0:

The results of topic modelling for the human's tweets are as follows:

Topic 0:

amp watching astrohague congratulations came tlxirivlps spacewalk 14 birthday space

Topic 1:

space photo space\_station shannon international profound playing board vbaxomjrtr crewdragon

Topic 2:

space\_station astroanimal stowage use march systems beautiful postponed upgrade power

Topic 3:

dragon astro\_doug crew look spacex team successful proud recently lnylsw2eet

Topic 4:

spacex astronaut crew team s6fwm2jqds dragon suggest watchi space launch

This topic modelling provided an expected result as the bot was just trying to retweet any update made of AstroKaren's account. The tweets done from the bot's account are just a sentence restructuring of the human's tweets and tweet history. General people's tweets make a certain sense, but the bot's tweets are just a random mixture of words that have a high frequency of appearing in the human's tweets. The difference is fundamental since the bots can take and restructure tweets, but it doesn't yet know what it's talking about hence all sentences do not make sense, as a human would.

To understand better if there's a difference in the tone and sentiment of human's who post and bots, I implemented Vader's Sentiment Analysis. The results were as follows:

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For Bots
  Pearson's Correlation: (nan, 1.0)
Sum of Positive Value : 0.9029999999999999
Sum of Negative Value : 0.0
For Real Users
  Pearson's Correlation: (-0.16338271805743368, 0.4912830385044731)
Sum of Positive Value : 3.7590000000000001
Sum of Negative Value : 0.076
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This result suggests that there is an unavailable negative correlation between the positive and negative sentiments whereas there is a complete strong positive correlation between the positive and negative sentiments.

This makes us conclude that the real human's who are tweeting about topics relevant to them and science etc, usually tweet with a specific sentiment in the tweet, which might be positive or negative, whereas the bots who are just tweeting usually just tweet with a complete positive sentiment going completely opposite to general tweeting sentiments.