

Twitter Bot analysis using Machine Learning

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INTRODUCTION

TWITTER is a popular online social networking and microblogging tool, which was released in 2006. Remarkable simplicity is its distinctive feature. Its community interacts via publishing text-based posts, known as tweets. The tweet size is limited to 140 characters. Hashtag, namely words or phrases prefixed with a # symbol, can group tweets by topic. For example, #Justin Bieber and #Women's World Cup are the two trending hashtags on Twitter in 2015. Symbol @ followed by a username in a tweet enables the direct delivery of the tweet to that user. Unlike most online social networking sites (i.e., Facebook and MySpace), Twitter's user relationship is directed and consists of two ends, friend and follower.

MOTIVATION

As reported in August 2011, Twitter has attracted 200 million users and generated 8.3 million Tweets per hour. It ranks the 10th on the top 500 site list according to Alexa in December 2011. On the other hand, malicious bots have been greatly exploited by spammers to spread spam. The definition of spam in this paper is spreading malicious, phishing, or unsolicited commercial content in tweets. These bots randomly add users as their friends, expecting a few users to follow back.¹ In this way, spam tweets posted by bots display on users' homepages. Enticed by the appealing text content, some users may click on links and get redirected to spam or malicious sites.² If human users are surrounded by malicious bots and spam tweets, their twittering experience deteriorates, and eventually the whole Twitter community will be hurt. The objective of this paper is to characterize the automation feature of Twitter accounts, and to classify them into two categories, human and bot.

RELATED WORK

1. Shellman, Erin. Bot or not.
<http://www.erinshellman.com/bot-or-not/>
2. Ferrara, et. Al.
<https://arxiv.org/abs/1407.5225>
3. Who Will Retweet This? Automatically Identifying and Engaging Strangers on Twitter to Spread Information.
<https://arxiv.org/ftp/arxiv/papers/1405/1405.3750.pdf>
4. <http://jpdickerson.com/pubs/dickerson14using.pdf>

DATA

We have analyzed and categorized multiple profiles to create the data set of submission. In our data.csv we have profiles of which 60-70 % are bots and others are humans.

We used multiple parameters to classify a profile:

1. If or not the user is following more than 1400 profiles and has less than 50 followers.
2. If or not the user has a profile picture URL and description.
3. If or not the name of the profile and the name in the URL are different.
4. If or not the user has 'bot' or random string in their nametag eg. @helloworld or @hxj48j9

ALGORITHMS

The algorithms that we intend to use for the purpose of this projects are:

1. Naïve Bayes classifiers
2. Some form of Rosner's algorithm.