



# TikTok's Users Analysis in the Context of US Politics

## Advanced Topics in Computer and Networks Security

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### Abstract

### Introduction

TikTok is one of the most prominent social networks currently available, boasting over 100 million users in the USA alone [12]. Approximately 60% of young adults (aged 18-24) and nearly all children (aged 5-15) use TikTok daily [16]. This significant influence attracts not only advertisers but also politicians: the Democratic Party began organizing paid influencers as early as the 2020 United States election (for instance, presidential candidate Michael Bloomberg engaged in paid partnerships on social media [8]), while Republican and Conservative hype houses campaigned on behalf of political candidates. In Germany, the political party CSU invited influencers to political events and has recently started creating influencer-like social media posts on platforms such as TikTok [8].

This led to the creation of influencer-driven marketing firms, which now claim to control vast, immediately-deployable stables of small-scale influencers for various campaigns. These “nano” and “micro” influencers differ from the conventional image of an influencer: they are everyday people with captive, intimate social media audiences who represent demographics particularly appealing to U.S. political campaigns, such as Latinos in South Florida, Black voters in Atlanta, and college-educated women in the Rust Belt [10]. Political influencers often do not have an institutional background, in fact most of the times their notoriety and fame is platform-built [9].

Despite this political engagement, TikTok has attempted to market itself as a platform for everything but politics: since 2019 the company has banned paid political advertising, stating that “the nature of paid political ads is not something we believe fits the TikTok platform experience.” Nevertheless, many creators regularly use the platform to disseminate political messages and viewpoints without disclosing whether the content is sponsored or not [2, 11].

Given these dynamics, there is considerable value in studying user interactions on the platform. This work aims to do so, focusing on the context of the 2024 U.S. political election. The study will examine user movements using a social graph, analyze user similarity through cosine similarity, infer political affinity, measure engagement, and visualize the impact

of publishing a video on followers and comments.

### 1 Data Gathering

Considering the context (US elections) it is imperative to have users data divided between left and right leaning, so a group of *super-users* was selected using various sources. *Super-users* are defined as follows:

- Influencers: people whose notoriety is platform-built, without a background in institutions of entertainment;
- Politicians;
- Newspapers or news sites (i.e. The Washington Post).

The complete followers list, with relative sources (missing if selected arbitrarily by the authors), is the following:

- Left-Wing:
  - @aocinthehouse [13, 15]
  - @bernie [13, 15]
  - @teamkennedy2024 [13, 15]
  - @cnn [6, 1]
  - @thedailybeast [6, 1]
  - @democracynow.org [unofficial]
  - @huffpost [6, 1]
  - @vox [6, 1]
  - @newyorker [6, 1]
  - @nytimes [6, 1]
  - @washingtonpost [6, 1]
  - @msnbc [6, 1]
  - @harryjssisson [5]
  - @underthedesknews [5]
  - @chrisdmowrey [5]
  - @rynnstar [16]
  - @ginadivittorio [4]
  - @genzforchange [7]
  - @repbowman [11]

- Right-Wing:

- @dailymail [6, 1]
- @dailywire [6, 1]
- @thesun [6, 1]
- @notvictornieves [5]
- @clarksonlawson [5]
- @studentsforlife [3]
- @babylonbee [3]
- @real.benshapiro [9]
- @theisabelbrown [2]
- @alynicolee1126 [2]
- @itsthemandrew [2]

Only five of each groups had been selected to data gathering, due to time constraints. All data has been gathered using TikTok's official APIs (<https://developers.tiktok.com/doc/overview/>)

## 1.1 TikTok's APIs

## 2 Privacy and echo chambers

To help visualize all the gathered data, to see the presence of echo chambers and to infer political views of users, data regarding followers of super-users has been used to create a social network graph and a cosine similarity matrix.

### 2.1 Data Preparation

First of all a list of super-users's followers has been gathered via TikTok APIs in the form of a JSON file, with the following structure (we can ignore "videoID" and "videoDate"):

```
1 [
2   {
3     "influencer": "ith-super-user Name",
4     "videoID": "videoID",
5     "videoDate": "videoDate",
6     "followerList": [
7       "follower1",
8       "follower2",
9       "follower3",
10      "follower4",
11      "follower5",
12      "follower6",
13      "follower-k"
14    ]
15  }
16 ]
```

For better understanding here follows a portion of the real JSON data used:

```
1 {
2   {
3     "influencer": "huffpost",
4     "videoID": "7354208741996186911",
5     "videoDate": "2024-04-05 11:46:08",
6     "followerList": [
7       "mathieucambet",
8       "raphclp",
9       "jennet153"
10    ]
11  },
12  {
13    "influencer": "huffpost",
14    "videoID": "7354208741996186911",
15    "videoDate": "2024-04-05 20:46:08",
16    "followerList": [
17      "doodlegolden0",
18      "evanroyalaug",
19      "cshanebritt",
20      "kated70"
21    ]
22  }
23 }
```

JSON data then gets imported to *Social\_Graph.r* to analyze:

```
1 data <- fromJSON(paste(readLines("data.json")))
2
3 left_influencer_names <- # vector of strings with left
4                           # super-user names
5 right_influencer_names <- # vector of strings with right
6                             # super-user names
7
8 # data.frame used to calculate all the graphs and tables
9 full_total <- data.frame(
10   influencer = data$influencer,
11   followerList = I(data$followerList)
12 )
13
14 full_influencer_names <- union(left_influencer_names,
15                                right_influencer_names)
```

Now we have three data structures to work with: two vectors with all super-user's names and a `data.frame` that stores all super-users and their gathered followers, like so:

influencer	followerList
alynicolee1126	character(0)
alynicolee1126	c("elsee30", "renetheriot171")
alynicolee1126	character(0)
alynicolee1126	markbutler5636
alynicolee1126	c("frazierbklima", "electricmaster57", "ravirquaddnos", "gabbertour", "darrenricks87", "kory_sprinkle")
alynicolee1126	character(0)
alynicolee1126	c("addie.thorp", "caliwen", "truth.be.told", "idgafboutya501", "rowdy_chav", "thesalvatoresandmore_", "monahuluta", "recoveringhedonist", "pureblood_k")
alynicolee1126	c("_christian_l11", "robertdonald98", "mesa11964", "red_tacoma_4.0", "sladethekoolaid")

### 2.2 Social Graph

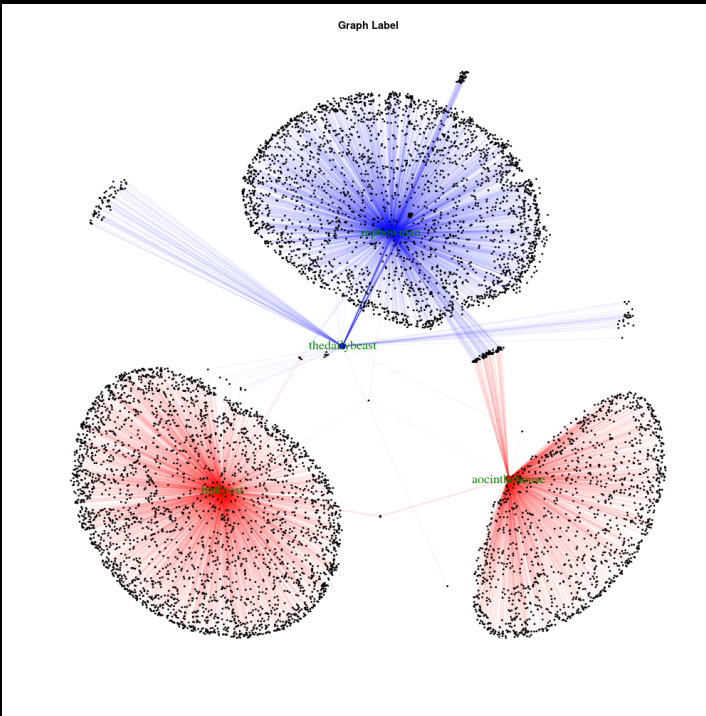
Broadly speaking, a social graph is a graph that represents social relations between entities, where vertices (or nodes) represents users and edges represents relations between such users. It is a model of representation of a social network, and has been referred to as "the global mapping of everybody and how they're related".

To give a brief example: if Alice and Bob are friends on a social network, in a social graph they would be represented each as a node, and there would be an edge between them. The term was popularized at the Facebook F8 conference on May 24, 2007, when it was used to explain how the newly introduced Facebook Platform would take advantage of the relationships between individuals to offer a richer online experience [14].



Employing a social graph has numerous advantages: it helps visualize all gathered data (all users and their relations), visualize the presence of echo chambers and give insights to analyze the network as a whole.

The graph that follows clearly demonstrate that: considering the gathered data, users do not interact with each other outside their communities, thus forming cliques that can easily be interpreted as echo chambers:



The aforementioned graph is actually a mockUp without all the complete data: due to hardware constraints, graph compilation is impossible at the moment of writing (04/06/2024).

Super-users can be easily identified: their nodes are bigger than the rest, they are labeled and, most notably, they are at the center of their respective sub-graphs.

All black vertices represent followers of the super-users, unlabeled for improved readability, and the edge color represents the political orientation of the super-user to whom they are connected to (red for **right-leaning** and blue for **left-leaning** super-users).

Let's clarify: if *@user-Alice* follows super-user *@aocinthehouse* (official account of Congress member Alexandria Ocasio-Cortez), which is classified as a left-leaning super-user, the edge connecting them will be blue.

Conversely, if *@user-Bob* follows super-user *@thesun* (official account of UK's tabloid The Sun), which is classified as a right-leaning super-user, the edge connecting them will be red.

### 3 Engagement

### 4 Content impact

### 5 Conclusions

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