

TechCrunch

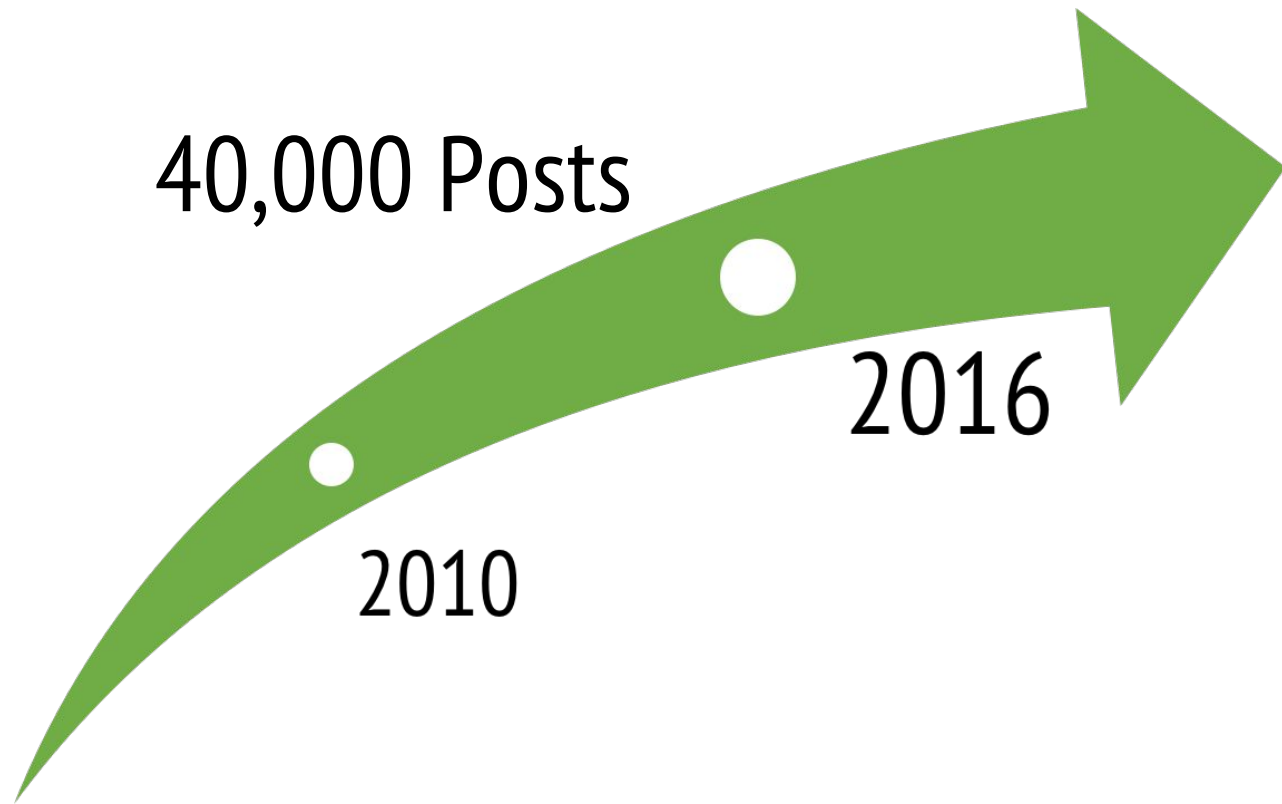
A Simple Topic Recommender



TechCrunch

*Build a simple **recommender** that suggests similar **topics** given a user's preferred topic*

Data Collection



15 minutes ago

Transportati...

Lyft just met its goal of launching in 100 new U.S. cities in 2017

by [Darrell Etherington](#)

Ride-hailing company Lyft is celebrating a milestone – it just launched in 10 new U.S. markets, making for 100 new cities added to the list of place where its available in 2017. That was the target Lyft had originally set for itself as its year-end target, but it's only been three months and the company has already crossed that marker. Thursday's launch in 10 new cities... [Read More](#)



17 minutes ago

Apps

Gboard gets upgraded with instant translation, GIF & emoji suggestions and more

by [Sarah Perez](#)

Gboard, Google's attempt to further infiltrate your phone by way of a keyboard application, is rolling out an update this morning that will introduce a handful of new features, including GIF and emoji suggestions as you type, easier voice typing, Google Translate, and more keyboard themes. The latter option will allow you to personalize the keyboard by selecting from an expanded selection... [Read More](#)



- Author
- Category
- Section
- Tag
- URL

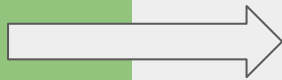
Natural Language Processing

A word cloud featuring various technology-related terms. The words are arranged in a dense, overlapping manner. The largest words are 'facebook' (blue) and 'vine' (red). Other prominent words include 'twitter' (orange), 'linkedin' (green), 'zynga' (green), 'combinator' (green), 'htc' (light blue), 'airbnb' (blue), 'ibm' (blue), 'secrets' (orange), 'spotify' (blue), 'kickstarter' (teal), 'windows' (green), 'gadgets' (blue), 'disrupt' (red), 'china' (green), 'sosh' (blue), 'flipboard' (blue), 'facebook' (blue), 'whatsapp' (blue), 'instagram' (blue), 'techcrunch' (blue), 'foursquare' (blue), 'jack' (blue), 'france' (blue), 'aereo' (yellow), 'raspberry' (yellow), 'kickstarter' (teal), 'windows' (green), 'gadgets' (blue), 'disrupt' (red), 'china' (green), 'sosh' (blue), 'flipboard' (blue), 'facebook' (blue), 'whatsapp' (blue), 'instagram' (blue), 'techcrunch' (blue), 'foursquare' (blue), 'jack' (blue), 'france' (blue), 'aereo' (yellow), 'raspberry' (yellow). Smaller words include: meetups, pinterest, ipo, linkedin, nokia, hoteltonight, newsletter, iphone, sony, india, kanopia, fleep, nintendo, edasenger, gadgets, zynga, windows, viber, mandal, kickstarter, google, pebble, podcast, adzuna, disrupt, pi, china, sosh, flipboard, facebook, whatsapp, instagram, techcrunch, foursquare, jack, france, aereo, raspberry, vine, htc, airbnb, ibm, secrets, spotify, kombinator, twitter, combinador, gadgets, zynga, windows, viber, mandal, kickstarter, google, pebble, podcast, adzuna, disrupt, pi, china, sosh, flipboard, facebook, whatsapp, instagram, techcrunch, foursquare, jack, france, aereo, raspberry.





Users



User



50 Topics

The diagram consists of three green circles arranged horizontally. The first circle on the left contains the text '50 Topics'. To its right is a large green multiplication symbol 'X'. The second circle in the middle contains the text '1 String from 10 Posts'. To its right is a large green equals sign '='. The third circle on the right contains the text '50 Strings'.



1 String
from 10
Posts



50 Strings

*'twitter announc remov music app app store later
afternoon already download app stop work april music
disappear surpris high profil launch earli last year app
popular wane fall regard failur'*

Recommendation System

TF-IDF Matrix



	access	activ	ad	alreadi	android	announc	app	appl	avail	base	becom	big	billion
google	0.02	0.01	0.02	0.02	0.09	0.03	0.04	0.00	0.00	0.04	0.01	0.01	0.00
viber	0.04	0.12	0.04	0.00	0.15	0.02	0.34	0.00	0.09	0.05	0.02	0.00	0.14
snapchat	0.02	0.10	0.04	0.03	0.02	0.04	0.47	0.00	0.03	0.10	0.02	0.10	0.17
instagram	0.00	0.02	0.03	0.01	0.03	0.00	0.07	0.00	0.01	0.02	0.01	0.02	0.04
facebook	0.01	0.00	0.25	0.00	0.00	0.02	0.06	0.00	0.01	0.01	0.01	0.03	0.02
battlefield	0.00	0.00	0.04	0.00	0.00	0.00	0.12	0.02	0.04	0.10	0.00	0.06	0.02
windows-10	0.02	0.01	0.00	0.02	0.01	0.08	0.12	0.00	0.02	0.02	0.01	0.01	0.00
secret	0.00	0.00	0.02	0.01	0.00	0.00	0.13	0.00	0.00	0.00	0.02	0.01	0.00
vine	0.00	0.00	0.02	0.01	0.02	0.01	0.14	0.00	0.00	0.00	0.01	0.00	0.00
flipboard	0.03	0.15	0.18	0.04	0.03	0.07	0.26	0.18	0.03	0.09	0.03	0.03	0.08

Dimensionality Reduction

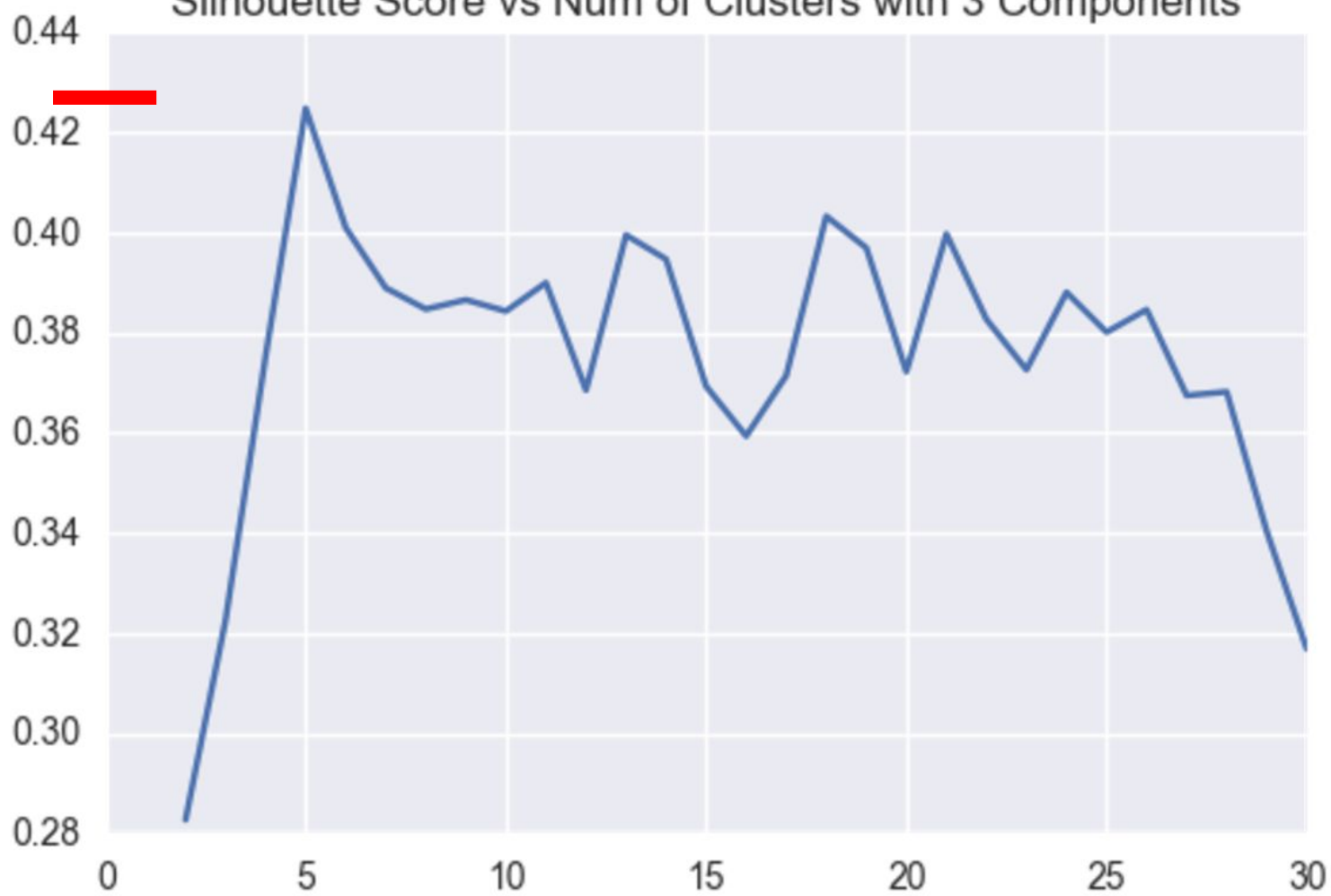
- Principle Components Analysis using SVD

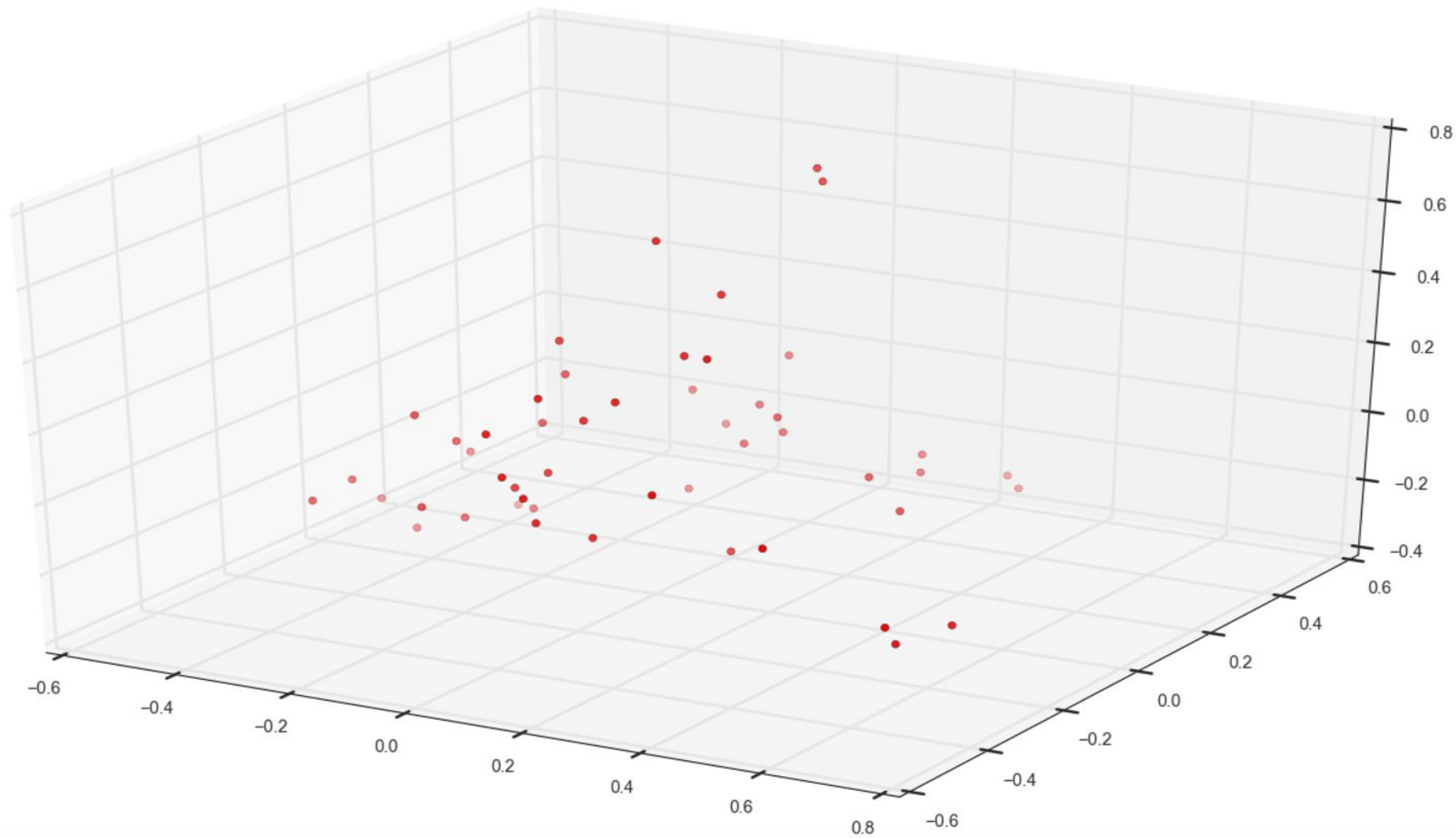


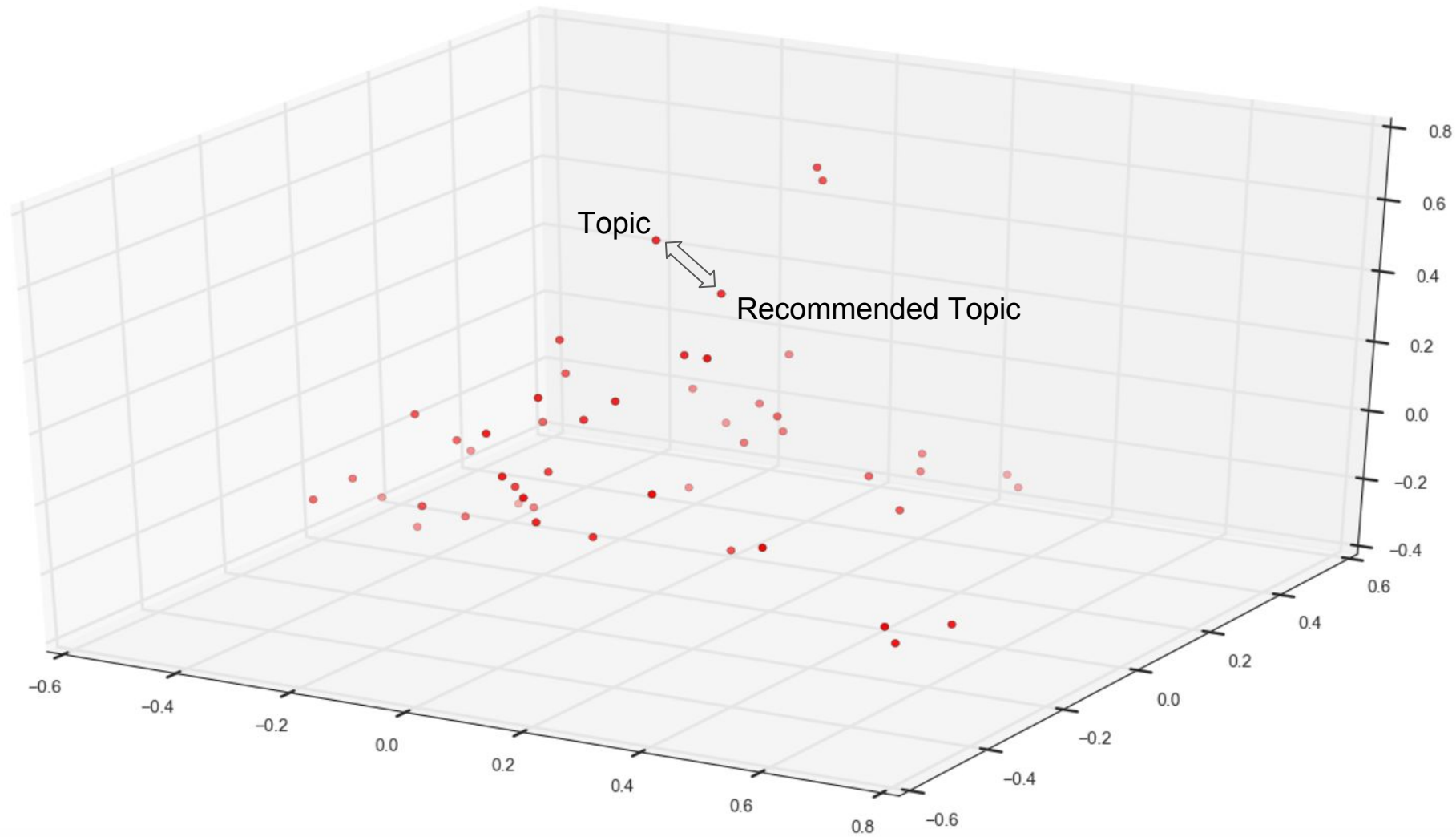
Clustering



Silhouette Score vs Num of Clusters with 3 Components







Euclidean Distance Matrix

	google	viber	snapchat	instagram	facebook	battlefield	windows-10
google	0.00	0.38	0.50	0.32	0.70	0.54	0.13
viber	0.38	0.00	0.33	0.52	0.75	0.59	0.37
snapchat	0.50	0.33	0.00	0.49	0.55	0.65	0.55
instagram	0.32	0.52	0.49	0.00	0.42	0.79	0.35
facebook	0.70	0.75	0.55	0.42	0.00	1.07	0.74
battlefield	0.54	0.59	0.65	0.79	1.07	0.00	0.63
windows-10	0.13	0.37	0.55	0.35	0.74	0.63	0.00

Example Recommendation

HTC

1. Blackberry: 0.06
2. Nokia: 0.07
3. Iphone: 0.15



Example Recommendation

Facebook

1. Facebook-Messenger: 0.02
2. Facebook-Ipo: 0.03
3. Facebook-Whatsapp: 0.24



Example Recommendation

Twitter

1. Jack-Dorsey: 0.03
2. Vine: 0.14
3. Twitter-Vine: 0.15



Example Recommendation

Tesla

1. Windows-10: 0.13
2. FlipBoard: 0.18
3. Raspberry-Pi: 0.20



Web App using Flask

```
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8" />
    <title>Recommendation Wizard</title>
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.1.1/
jquery.min.js"></script>
    <script script type="text/javascript" language="javascript">

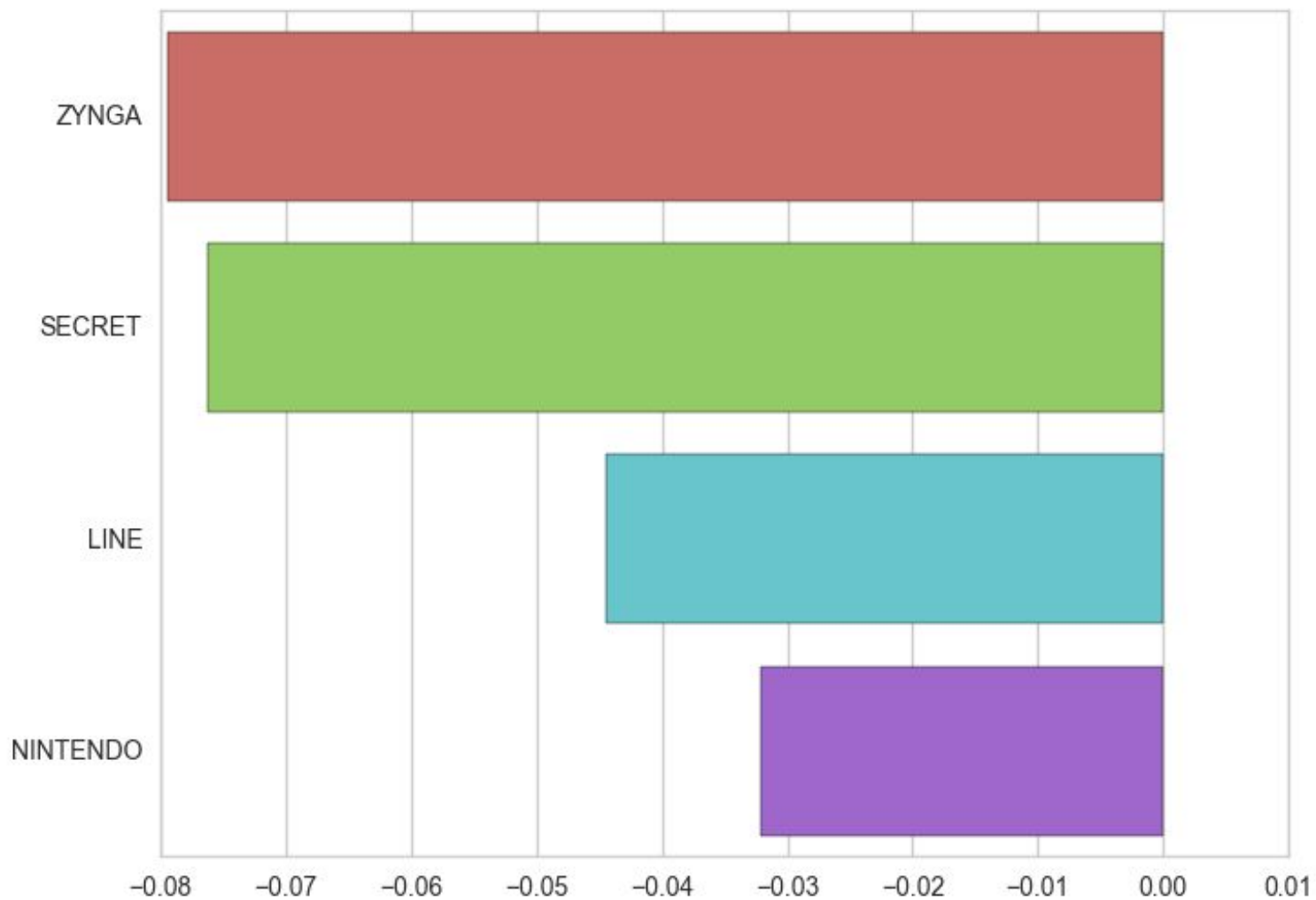
$(document).ready(function(){
  // $("button").click(function(){
    $("form#myform").on('submit', function(event){
      event.preventDefault();
      console.log('form submitted')
      console.log($(this));

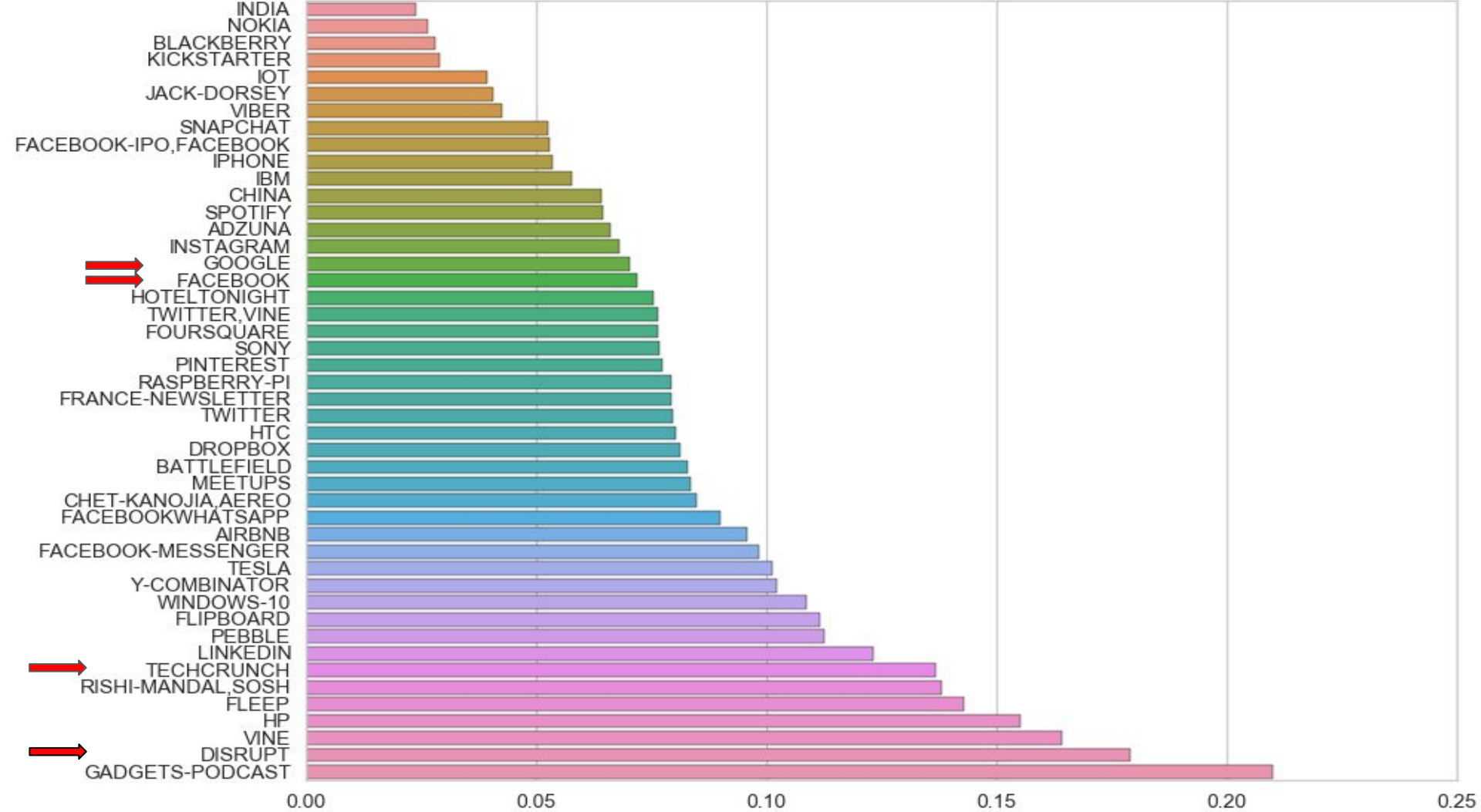
      button = $(this)
      var button_url = button.attr("action");
      var formData = $(this).serialize();
      var editName = formData.substring(5)
      var passMe = { 'rec' : editName};

      $.ajax({
        url: 'http://127.0.0.1:5000/rec',
        type: 'POST',
        data: JSON.stringify(passMe, null, '\t'),
        contentType: 'application/json;charset=UTF-8',
      }).done(function(response){
        var newtext = response["recommendation"];
        $("#div1").replaceWith(newtext);
        console.log(response);
      }).error(function(response){
        console.log("failed")
      });
    });
  });
});
```

<http://127.0.0.1:5000/>

Sentiment Analysis





Future Works

- Expand the number of topics to more than 50
- Improve the Flask web app
- Time series analysis on sentiments