TweetRank

TweetRank is an attempt to apply the PageRank algorithm on Twitter statuses (tweets).

It uses a different rank calculation which considers attributes such as number of replies/retweets and hash tags.

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# Components



**Ranker:** computes TweetRank from crawler data

**Solr:** indexes and provides query interface for end user

**Crawler:** collects tweets via the Twitter API

# Crawler

# Ranker

* Uses the complete path *Monte Carlo* algorithm, stopping at dangling nodes
* Starts a randomized walk from each node exactly 100 times
* Random path length - 20% chance at each node that the surfer stops
* Ranker uses 10 threads to compute walks in parallel
* Final rank is the total number of visits for each node (normalized to 0 - 10)

|  |  |  |  |
| --- | --- | --- | --- |
| Thread 1 | Thread 2 | Thread 3 | Thread 4 |
| https://github.com/mogelbrod/TweetRank/blob/master/doc/graphs/mc-threads-0.png?raw=true | https://github.com/mogelbrod/TweetRank/blob/master/doc/graphs/mc-threads-1.png?raw=true | https://github.com/mogelbrod/TweetRank/blob/master/doc/graphs/mc-threads-2.png?raw=true | https://github.com/mogelbrod/TweetRank/blob/master/doc/graphs/mc-threads-3.png?raw=true |
| {2, 1, 0, 1} | {1, 1, 1, 1} | {2, 1, 1, 0} | {1, 1, 1, 1} |

{6, 4, 3, 3}

**Normalize rank**

{10, 20/3, 5, 5}

# Solr / Lucene

* Handles indexing and searching.
* Crawler sends tweets to be indexed by Solr through *HTTP POST* requests (in XML format)
* Current TweetRank data is fetched from a text file on the server
  + Enables rank updates without having to replace (re-index) existing documents
  + Utilizes the *ExternalFileField* format in Solr
* Scores for individual statuses are calculated as a product of:
  + TweetTrank
  + *tf-idf* for terms, where matches against hash tags are boosted

# Results