Chinese Whispers - An Efficient Graph Clustering Algorithm

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Tuesday 14 May 2019

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The article was written by (Biemann 2006). It was was cited 303 times according to Google Scholar. The task performed was graph-clustering. They used x metric over x.

Hypothesis

A randomized graph-clustering algorithm would perform well of small worlds.

Evidence and Results

Dataset

The dataset used are all from the natural language processing world.

Results

Contribution

The authors propose

Algorithm 1 Chinese Whispers

Input: An initial graph G of V multidimensional vectors to be clustered; A maximum number of iterations $maxiterations$

Output: An assignment of the clusters for each vertex $\in G.V$

procedure ChineseWhispers(G)
  for each vertex $(i, v) \in enum(G.V)$ **do**
    class$(v_i) \leftarrow i$
  end for
  while $maxiterations > 0$ **do**
    $vertexlist \leftarrow shuffle(G.V)$
    for each $v \in vertexlist$ **do**
      $class(v) \leftarrow \text{argmax}_\theta[\Sigma_{c \in Neighbors(v)} \mathbb{I}(c, \theta)]$
    end for
    $maxiterationsp \leftarrow maxiterations - 1$
  end while
  return class
end procedure

Small world graphs

Controversial Ideas

Weaknesses

Future Work

References

Biemann, Chris (June 2006). "Chinese Whispers - an Efficient Graph Clustering Algorithm and its Application to Natural Language Processing Problems". In: *Proceedings of TextGraphs: the First Workshop on Graph Based Methods for Natural Language Processing*. New York City: Association for Computational Linguistics, pp. 73–80. URL: https://www.aclweb.org/anthology/W06-3812.