



May 2018

Call for Bachelor/Master Thesis

„Are Researchers Nice to Each Other? Analyzing arXiv.org Publications and Their Citations“

What is the topic?

arXiv.org is a platform on which researchers upload scientific publications. Recently, a large data set [1] has been created which contains all arXiv.org computer science publications in plaintext, together with annotations of citations (see example on the right). Analyzing such collections of publications, especially concerning citations, has been performed only to a very limited extent. However, such analysis can lead to a better understanding of how researchers write publications and how the contained citations are characterized. Ultimately, insights might lead to guidelines how researchers should write publications in the future.

This thesis is about analyzing the described arXiv.org CS data set. The student is expected to analyze the data set with respect to aspects such as citation function [2], citation polarity [3], argumentation within the paper (cf. discourse analysis), etc. (An introduction of these aspects will be given in the first discussions with the thesis supervisor.)

The mentioned arXiv.org data set, first literature, and a working infrastructure (VM or Big Data cluster) will be provided to the student. In case of good outcomes of the thesis, the supervisor is interested in writing together with the student a corresponding scientific publication on the topic.

[1] See <http://citation-recommendation.org/publications/>

[2] See <https://dl.acm.org/citation.cfm?id=1610091>

[3] See <http://www.aclweb.org/anthology/N13-1067>

Which prerequisites should you have?

- Interest in text mining/data mining/knowledge discovery.
- Knowledge and skills in natural language processing, computational linguistics, and machine learning a plus.

Keywords: data analysis, data mining ,text mining, bibliometrics, digital libraries, natural language processing, machine learning.

```
The uniformly sampled minibatch
stochastic gradient is an unbi-
ased estimation of the true
gradient
<DBLP:http://dblp.org
/rec/conf/icml/Zhang04>
<DBLP:http://dblp.org/rec/conf/
aistats/RakhlinSS13>
<DBLP:http://dblp.org/rec/conf/
icml/Shamir013>
<DBLP:http://dblp.org/rec/journ
als/jmlr/DuchiS09>
, but the
resulting estimator may have
relatively high variance.
=====
Throughout this paper, we will
denote <formula> as <formula>
for simplicity.
=====
[..]
```

Example sentence from the data set arXiv.org CS [1].

Contact:
Michael Färber
michael.farber@cs.uni-freiburg.de