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Arxiv Project Proposal

Context

Arxiv.org is a free open-access archive of scholarly articles. Articles on arxiv are not peer reviewed by the service, and articles are frequently published there before going through peer review of an actual academic research journal ostensibly to receive feedback before officially publishing. The service has papers from several different academic fields and as such has a user input category system to help researchers find papers relevant to their expertise.

The project is to use the abstracts of the paper to train a classifier to predict which categories a paper with a given abstract belongs to. This model could, in practice, be applied to summaries of other works to classify them in terms of Arxiv categories. For example, it could be used to identify what areas of research are being discussed in a news brief.

The basic outline for the project is as follows:

1. Retrieve data from, https://www.kaggle.com/Cornell-University/arxiv, and process it into a form that can more easily be worked with by removing data that will not be used.
2. Tokenize the corpus of abstracts.
3. Train a multinomial Naive Bayes classifier to use a benchmark to evaluate other models' performance
4. Incorporate more complicated models (Possibly use basic network analysis to identify closely related categories.)

Criteria for Success

Macro f1 score of 0.7?

Scope of Solution Space

Any Classifier algorithm that I can train and test before October.
Problem statement formation

Constraints

This Capstone needs to be completed before October at the latest

Stakeholders

Stakeholders would be Arxiv.org users and anyone else with an interest in classifying text related to scholarly works.

Data sources

https://www.kaggle.com/Cornell-University/arxiv