Clickbait Detection using Parallel Neural Networks

Peter Adelson, Sho Arora, and Jeff Hara
padelson@stanford.edu, shoarora@stanford.edu, jhara18@stanford.edu

PROBLEM
As attention has become an increasingly scarce resource, clickbaiting titles have become highly prevalent with underlying content often fails to deliver [1]. Clickbait scoring provides immediate application in providing automatic flagging of clickbaiting articles. We explore the performance of a parallel neural network architecture on the task, using article, post, and title text as input to generate a clickbait score. We are able to achieve a MSE of 0.067 and F1 score of 0.648.

DATA
We used the clickbait dataset provided by Bauhaus-Universität (clickbait-challenge.org). Features include article text, post text, title text, associated post metadata, and human-generated clickbait scores ranging between 0 and 1 with higher scores indicating clickbait. The dataset had 20,000 unique points. We used a 60/20/20 train/dev/test split. It’s balance is about 0.25 entries with median scores greater than 0.5.

MODEL ARCHITECTURE
The model is based around three CNNs, operating in parallel. Their output is then joined in an activation layer. This layer then outputs a result that is joined with the output of the three neural networks to output a final clickbait score. Each neural network focuses on a different field from post, title, and article. We have affectionately called our model ‘PNet’, for Parallel Network.

FUTURE WORK
The model architecture provides interesting opportunities for extensions with potential for better results. Different models such as the QRNN could be attempted. Different activation functions could be used in the final layers of the model. Finally, investigating the associated post media image could improve results.

REFERENCES