

Detection and Discovery of Misinformation Sources using Attributed Webgraphs

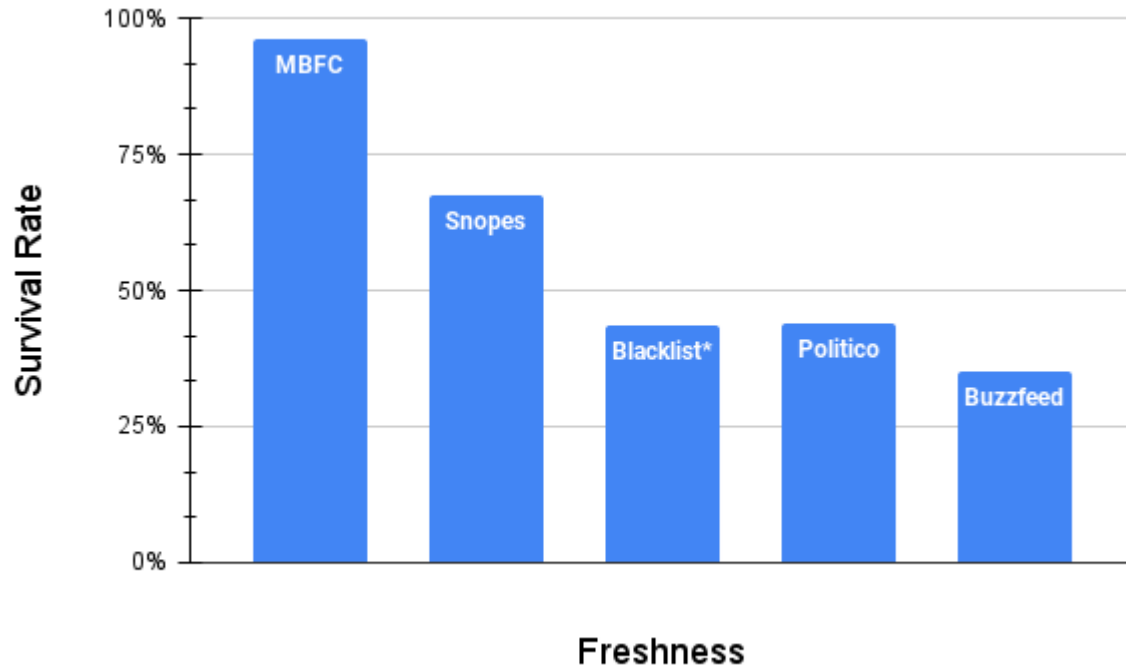
Peter Carragher

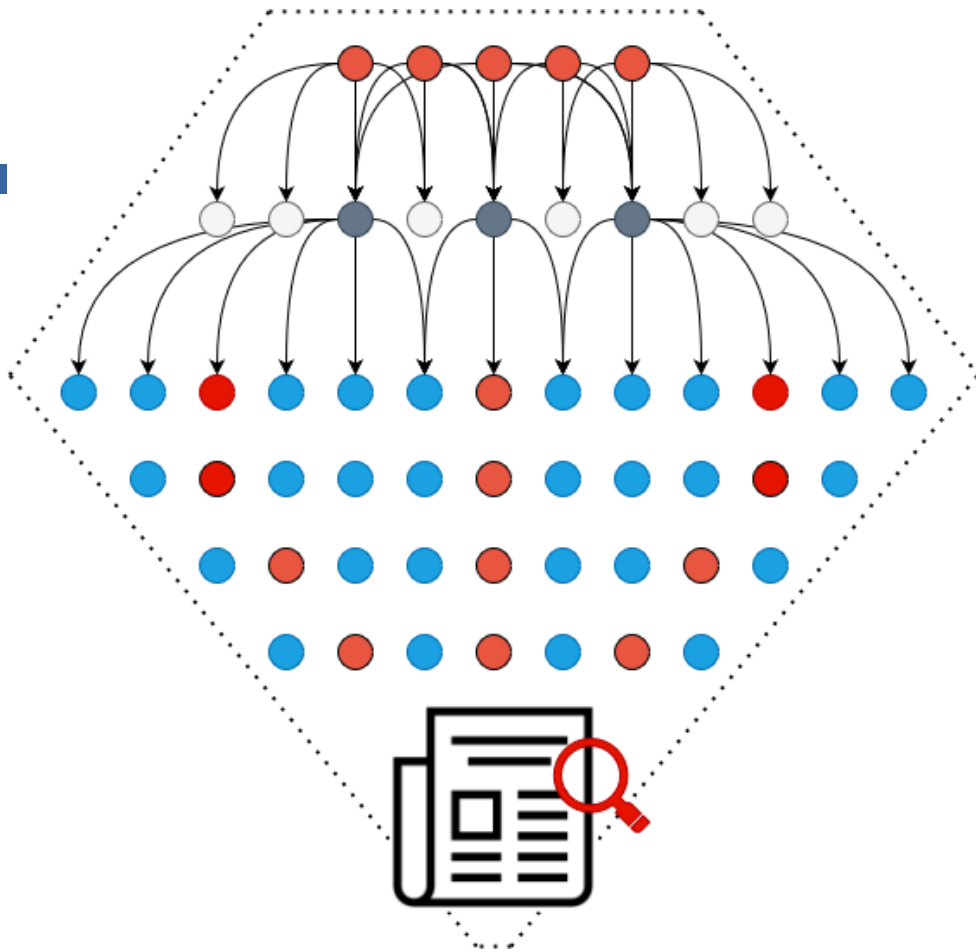


Carnegie Mellon University



<50% domains remain 3 years after publication



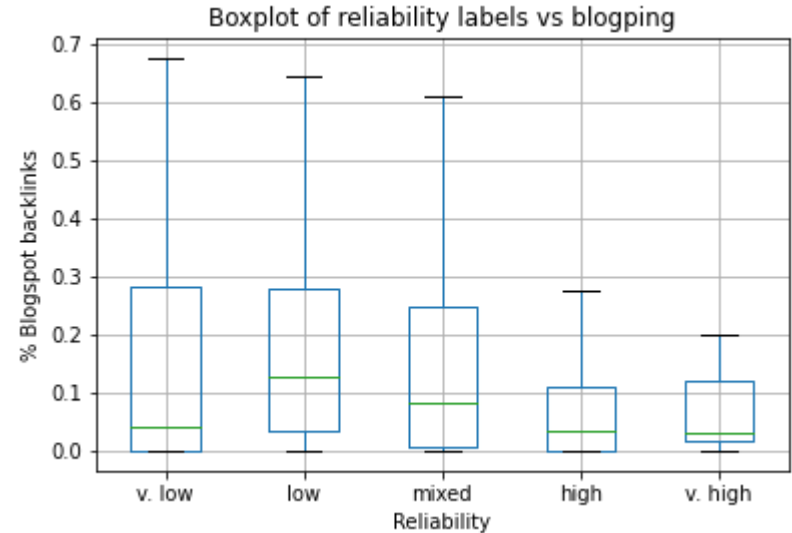
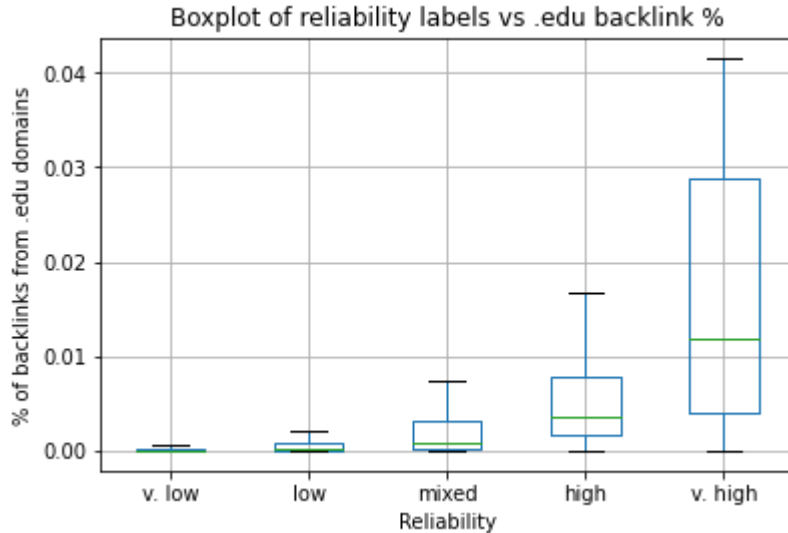


Discovery

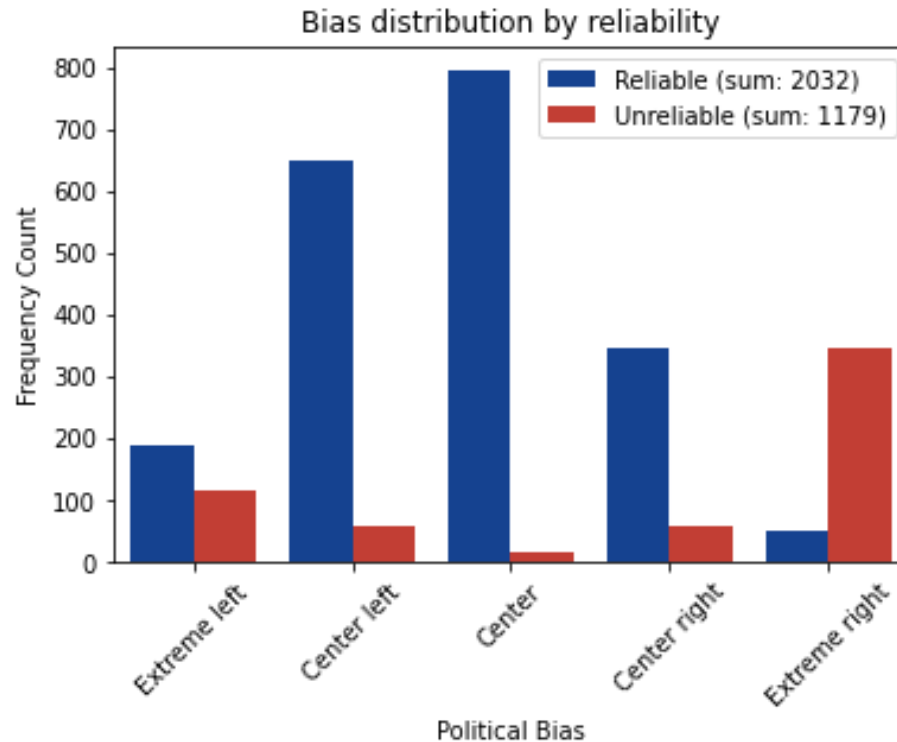
Detection

Evaluation

SEO Features correlate with misinfo labels



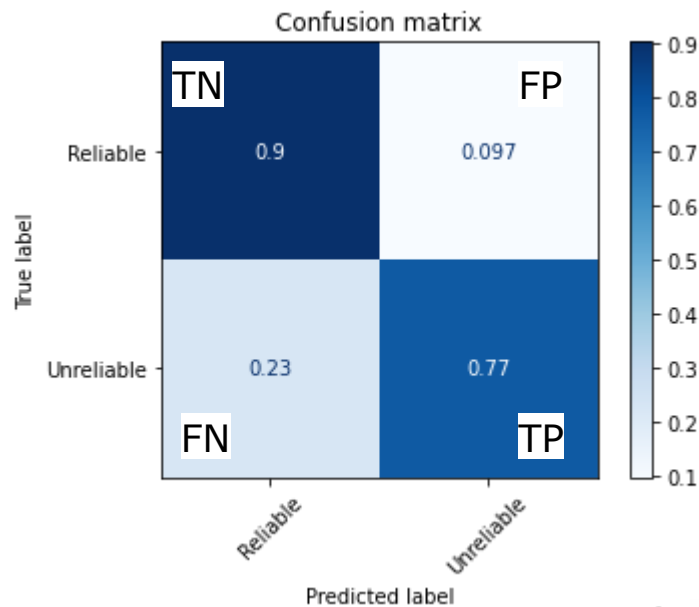
Unreliable labels are skewed to extreme bias



SEO Networks have strong predictive power over misinfo labels (with few false positives)

Task: predict reliability labels given features from Ahrefs API

Classifier	F1 score
GNN(target)	0.84
GNN(source)	0.82
Boosted DT	0.76
Random forest	0.74

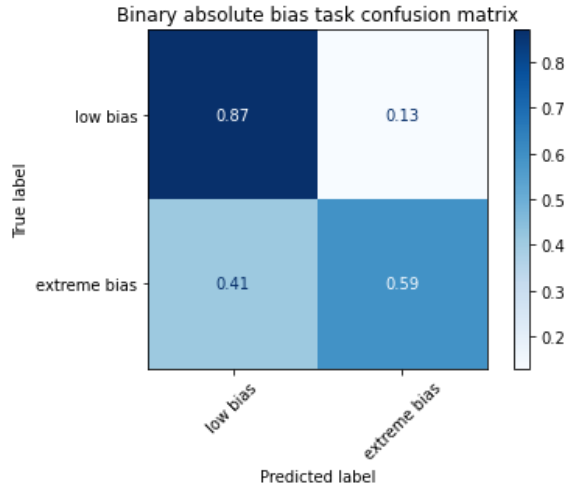


More predictive power on absolute bias vs relative

- Task: predict bias labels given features from Ahrefs API

Absolute: Extreme vs Centrist

Relative: Left vs Right

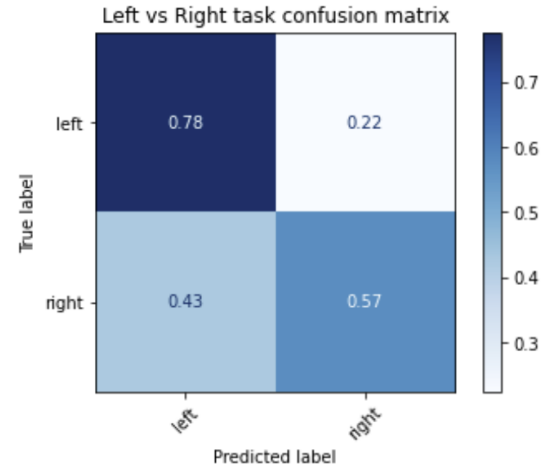


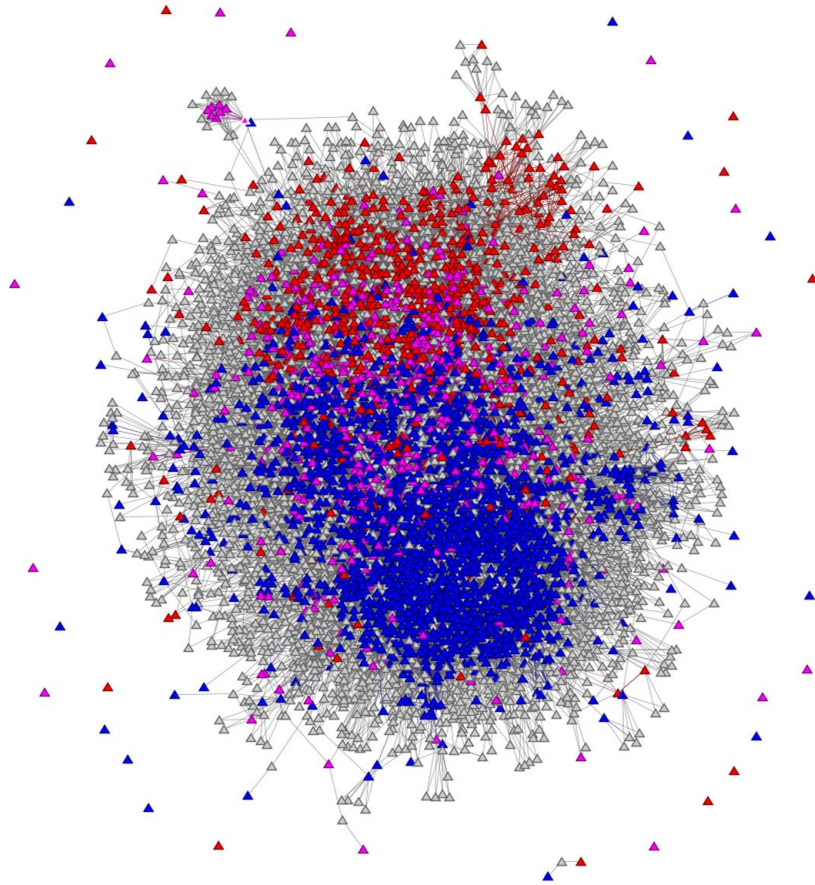
Acc: 84%

F1: 68%

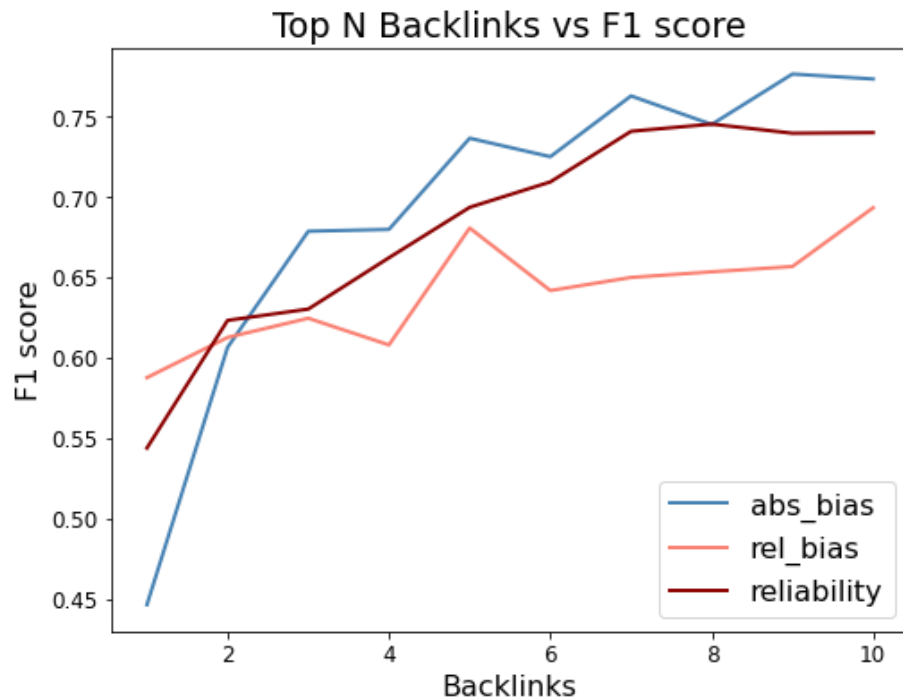
0.67

0.62

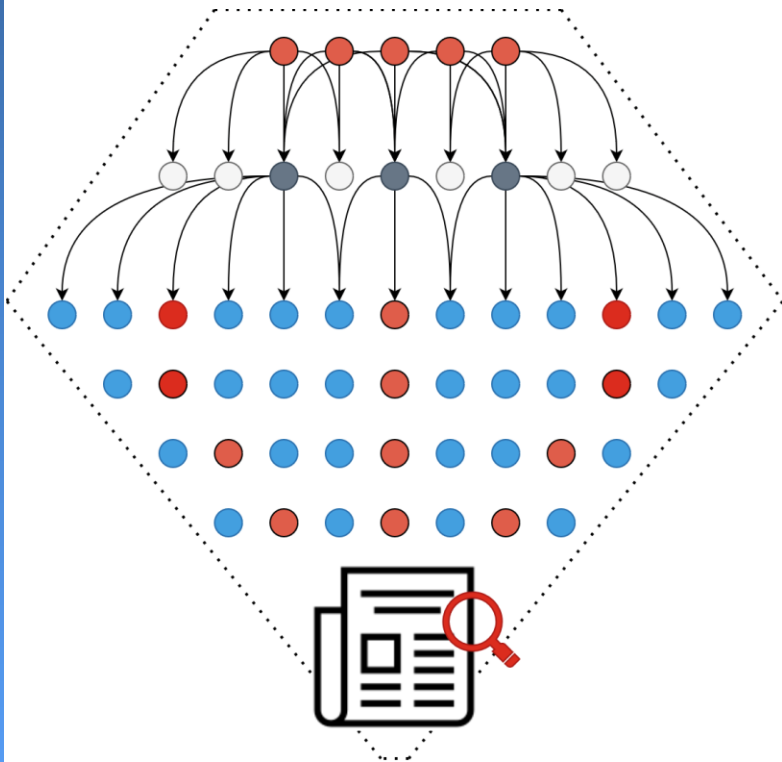




More backlinks = better performance (with diminishing returns)



Misinfo Source Discovery: Link Scheme outlinks are high % misinfo



1. List of known misinfo sources
2. Backlinks from sources
3. Find link schemes
4. Outlinks from link schemes

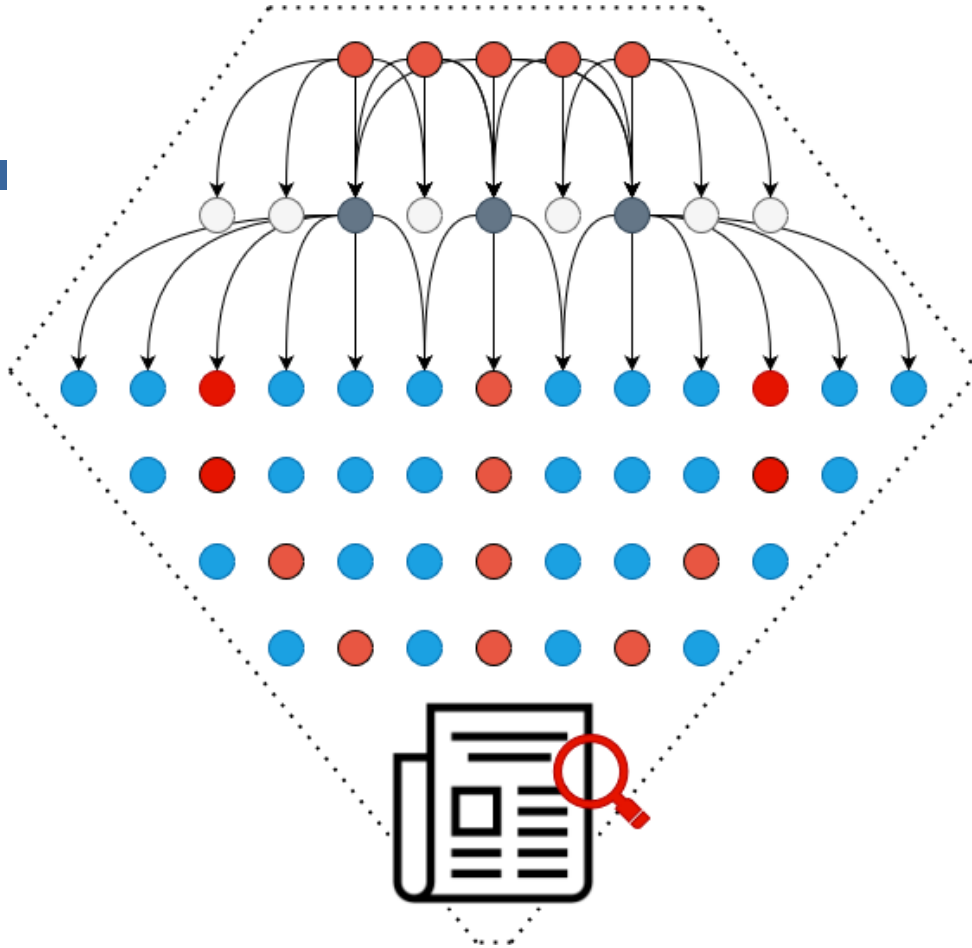
1. Filter outlinks for news sources
2. Filter new sources for extreme bias
3. Filter extreme bias for misinfo

1. Evaluate

Misinfo Source Discovery: Evaluation

Source	Misinfo Rate
Common Crawl (random www sample)	0.1%
Combined network (outlinks & backlinks)	10%
Link Scheme Outlinks	29%
Link Scheme News Sources	49%

Reliability		Bias	
Label	Count	Label	Count
V. Low	63	Extreme Left	7
Low	10	Left	9
Mixed	18	Center	14
High	14	Right	6
V. High	6	Extreme Right	67



Discovery

Detection

Evaluation