Network community detection with edge classifiers trained on LFR graphs

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Abstract

TODO

1. Classifiers for community detection

TODO

Figure 1: *STUFF*

2. LFR Graphs

TODO

Figure 2: *TODO*

3. Generalization

Figure 3: *BLARG*

ZUT

emphasised.

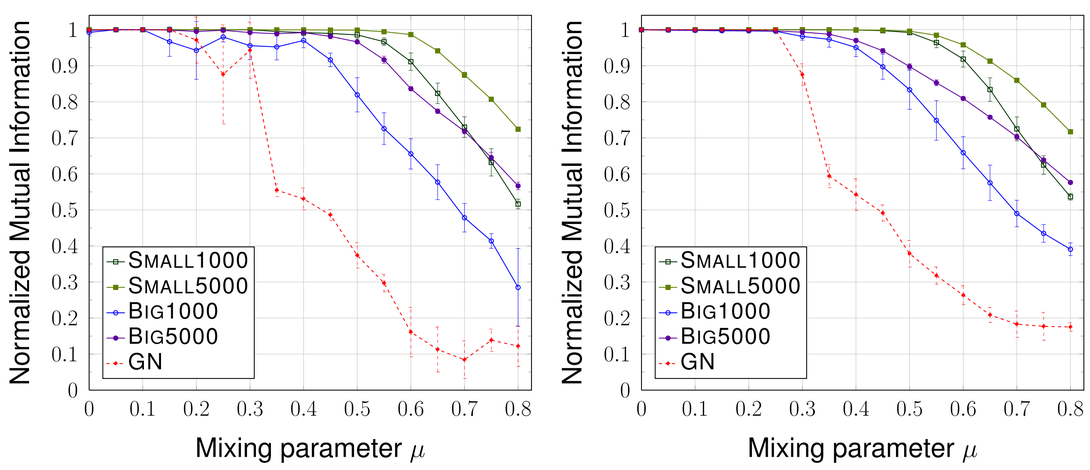

Figure 4: *The performance of classifier based community detection on graphs generated with the LFR benchmark, as measured with Normalized Mutual Information. The error bars show the standard deviation across different training and testing datasets. In the left plot a new classifier is trained for each graph. In the right plot the same classifier is used in all cases, trained on a big community graph (Big1000) with* $\mu = 0.5$

	Normalized Mutual Information				Number of communities	
Dataset	Classifier	R. Weak	R. Strong	Infomap	Actual	Classifier
Zachary	0.649	0	0	0.568	2	4
Football	0.923	0.908	0.201	0.924	12	15
PolBooks	0.522	0	0	0.537	3	9
PolBlogs	0.134	0.014	0.014	0.340	2	322

Table 1: *Results on real world datasets.*

References

[1] A. Lancichinetti, S. Fortunato, and F. Radicchi. Benchmark graphs for testing community detection algorithms. Phys. Rev. E, 78(4), 2008.

[2] F. Radicchi, C. Castellano, F. Cecconi, V. Loreto, and D. Parisi. Defining and identifying communities in networks. Proc. Natl. Acad. Sci. USA, 101(9):26582663, 2004.

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