

Project 2: Duplicate an Existing Paper

COMS 6998-006 Network Theory, Spring 2008

Existing Paper Choice: March 10, 2008
Entire Project Due: March 27, 2008

1 Overview

The second assignment is to duplicate an existing paper and document your results in a 6-page Physics Review (PR) Style paper.

2 Deadlines

2.1 Existing Paper Choice

Students should pick their first and second choice for papers they want to replicate by **March 10, 2008**. You are encouraged to pick papers from diverse areas, e.g., language networks, machine learning, harmonic functions, etc...

You can either choose a paper from the list below or pick another paper as long as it is approved by the March 10th deadline. In addition, some parts of the paper can be skipped. These sections must be clearly stated in the March 10th email along with the reason they are being skipped. Approval will be received if skipping those sections is acceptable.

The two choices should be sent to Professor Radev (radev@umich.edu) and Sara (ss3067@columbia.edu) by the deadline. The email should be as follows:

Name: John Smith

1. First Paper Choice
2. Second Paper Choice

Skipped Sections: ...

If you have any questions, please check with Prof. Radev and Sara about the appropriateness of your choice.

2.2 Entire Submission

The entire submission is due the Thursday after Spring Break, **March, 27, 2008**.

3 Papers that can be Replicated

This entire list can be found online at <http://www1.cs.columbia.edu/~coms6998/papers.htm>

- M. E. J. Newman, Phys. Rev. E 74, 036104 (2006).
- M. Girvan and M. E. J. Newman, Proc. Natl. Acad. Sci. USA 99, 7821-7826 (2002).

- L. A. Adamic and N. Glance, "The political blogosphere and the 2004 US Election", in Proceedings of the WWW-2005 Workshop on the Weblogging Ecosystem (2005).
- M. E. J. Newman, The structure of scientific collaboration networks, Proc. Natl. Acad. Sci. USA 98, 404-409 (2001).
- Michael Kearns, Siddharth Suri, Nick Montfort, An Experimental Study of the Coloring Problem on Human Subject Networks Science 11 August 2006: Vol. 313. no. 5788, pp. 824 - 827
- D. J. Watts and S. H. Strogatz. Collective dynamics of 'small-world' networks, Nature, 393:440-442 (1998)
- J. Kleinberg. Navigation in a Small World. Nature 406(2000), 845.
- L. Barabasi and R. Albert "Emergence of scaling in random networks" Science 1999
- Masucci and Rodgers "Network properties of written human language" 2006
- Sole, R. V., Corominas, B., Valverde, S., and Steels, L. (2005) Language Networks: their structure, function and evolution. Trends in Cognitive Sciences.
- Sigman/Cecchi Mariano Sigman and Guillermo A Cecchi. Global organization of the Wordnet lexicon.. Proc Natl Acad Sci U S A, 99(3):1742-7, February 2002
- The Political Blogosphere and the 2004 U.S. Election: Divided They Blog, Lada A. Adamic and Natalie Glance, LinkKDD-2005, Chicago, IL, Aug 21, 2005.
- Friends and Neighbors on the Web, Lada A. Adamic and Eytan Adar, Social Networks, 25(3):211-230, July 2003.
- Graph Evolution: Densification and Shrinking Diameters Jure Leskovec, Jon Kleinberg, Christos Faloutsos. ACM Transactions on Knowledge Discovery from Data (ACM TKDD), 1(1), 2007.
- Cascading Behavior in Large Blog Graphs Jure Leskovec, Mary McGlohon, Christos Faloutsos, Natalie Glance, Matthew Hurst. SIAM International Conference on Data Mining (SDM) 2007
- Graphs over Time: Densification Laws, Shrinking Diameters and Possible Explanations, Jure Leskovec, Jon Kleinberg and Christos Faloutsos. ACM August 2005.
- ALIBABA: PubMed as a graph, Conrad Plake, Torsten Schiemann, Marcus Pankalla, Jorg Hakenberg, and Ulf Leser, Vol. 22 no. 19 2006, pages 2444-2445, doi:10.1093/bioinformatics/bt1408
- Simrank++: Query rewriting through link analysis of the click graph, Ioannis Antonellis, Hector Garcia-Molina, and Chi-Chao Chang
- Specificity and Stability in Topology of Protein Networks, Sergei Maslov and Kim Sneppen, VOL 296 SCIENCE, www.sciencemag.org, May 3, 2002
- Protein-protein interaction networks and biology - what's the connection?, Luke Hakes, John W Pinney, David L Robertson and Simon C Lovell, 2008 Nature Publishing Group <http://www.nature.com/naturebiotechnology>
- Mining Gene-Disease Relationships From Biomedical Literature: Weighting Protein-Protein Interactions And Connectivity Measures, Graciela Gonzalez, Juan C. Uribe, Luis Tari, Colleen Brophy, and Chitta Baral, Pacific Symposium on Biocomputing 12:28-39(2007)
- Detection of topological patterns in complex networks: correlation properties of the internet, Sergei Maslova, Kim Sneppen, Alexei Zaliznyak, Physica A 333 (2004) 529 - 540

- Finding community structure in networks using the eigenvectors of matrices, M. E. J. Newman, arXiv:physics/0605087 v3 23 Jul 2006
- Scale-free networks in cell biology, R. Albert, Journal of Cell Science 118, 4947-4957 Published by The Company of Biologists 2005, doi:10.1242/jcs.02714
- A Protein Interaction Map of *Drosophila melanogaster*, L. Giot, et al., Science 302, 1727 (2003); DOI: 10.1126/science.1090289
- Finding and evaluating community structure in networks, M. E. J. Newman and M. Girvan, arXiv:cond-mat/0308217v1, Aug, 11, 2003
- Community structure in the United States House of Representatives, Mason A. Porter, Peter J. Mucha, M.E.J. Newman, A.J. Friend Physica A 386 (2007) 414438
- Patterns in syntactic dependency networks, Ramon Ferrer Cancho, Ricard V. Solé, and Reinhard Kähler, PHYSICAL REVIEW E 69, 051915 (2004)
- Strong correlations between text quality and complex networks features, L. Antigueira, M.G.V. Nunes, O.N. Oliveira Jr., and L. da F. Costa. Physica A, June 2006.
- A Protein Interaction Map of *Drosophila melanogaster*, L. Giot et al (2003) Science 302 (5651), 1727. [DOI: 10.1126/science.1090289]
- F Wu, BA Huberman: Finding communities in linear time: a physics approach The European Physical Journal B-Condensed Matter, 2004