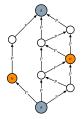
applications science

introduction to network analysis in Python (NetPy)

Lovro Šubelj University of Ljubljana 10th Dec 2019

science historiography

- algorithmic historiography tracks evolution of field
- relying on citations between scientific publications

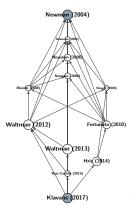


(input) selected source & target publications s & t
 (method) each citation is relevant/active with probability p
(output) importance is probability of path from s to t through u

science modularity

(target) Newman & Girvan (2004), Finding and evaluating community..., Phys. Rev. E 69(2), 026113.

(SOURCE) Klavans & Boyack (2017), Which type of citation analysis generates..., JASIST 68(4), 984-998.



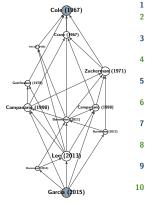
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science peer review

(target) Cole & Cole (1967), Scientific output and recognition, Am. Sociol. Rev. 32(3), 377-390.

(SOURCE) Garcia et al. (2015), The author-editor game, Scientometrics 104(1), 361-380.



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snapshot of WoS collected by (Batagelj et al., 2017)

science small-world

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    (target) Watts & Strogatz (1998), Collective dynamics of
'small-world' networks, Nature 393(6684), 440-442.
    (source) Backstrom et al. (2012), Four degrees of separation,
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science scale-free

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(target) Barabási & Albert (1999), Emergence of scaling in
random networks, Science 286(5439), 509-512.
(SOURCE) Liu et al. (2011), Controllability of
complex networks, Nature 473(7346), 167-173.
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science deep learning

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(target) LeCun et al. (2015), Deep learning, Nature 521(7553), 436-444.
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Lovro Šubelj, Ludo Waltman, Vincent Traag, and Nees Jan van Eck. Intermediacy of publications.

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