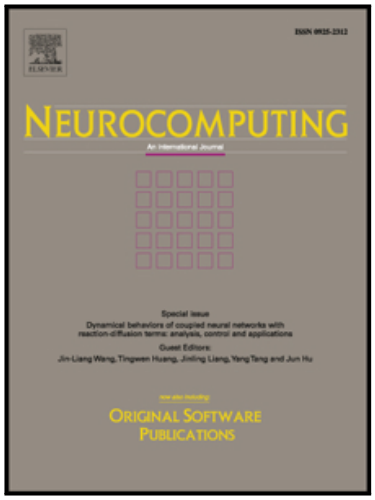
Communicated by Dr. Guan Ziyu

Accepted Manuscript



Centrality ranking in multiplex networks using topologically biased random walks

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PII: S0925-2312(18)30706-9
DOI: 10.1016/j.neucom.2018.05.109
Reference: NEUCOM 19670

To appear in: *Neurocomputing*

Received date: 13 October 2017
Revised date: 26 March 2018
Accepted date: 28 May 2018

Please cite this article as: Cangfeng Ding, Kan Li, Centrality ranking in multiplex networks using topologically biased random walks, *Neurocomputing* (2018), doi: 10.1016/j.neucom.2018.05.109

Highlights

- A general expression of topologically biased random walks is proposed to do multiplex PageRank.
- The topologically biased multiplex PageRank is proposed to characterize the centrality rankings of nodes in multiplex networks.
- Depending on the nature of biases and the interaction of nodes between different layers, the biased multiplex PageRank is divided into the additive, multiplicative and combined cases.
- The proposed method is evaluated on two real-world multiplex network datasets, demonstrating that it can efficiently capture the significantly top-ranked nodes in multiplex networks by opportunely tuning of the biases in the walks.