



DAFTAR PUSTAKA

- Arasteh, M. and Alizadeh, S., 2019. A Fast Divisive Community Detection Algorithm Based on Edge Degree Betweenness Centrality. *Applied Intelligence*, 49(2), pp.689–702.
- Atiya, H.R. and Nawaf, H.N., 2021. Community Structure-Aware Fairness and Goodness Algorithm for Link Weight Prediction. *Journal of Physics: Conference Series*, 1804(1), pp.1–10.
- Atiya, H.R. and Nawaf, H.N., 2020. Prediction of Link Weight of bitcoin Network by Leveraging the Community Structure. *IOP Conference Series: Materials Science and Engineering*, 928(3), pp.1–10.
- Bandes, U., 2008. Engineering Graph Clustering: Models and Experimental Evaluation. *ACM Journal of Experimental Algorithmics*, 12(1), pp.1–26. Available at: <http://portal.acm.org/citation.cfm?doi=1227161.1227162>.
- Bhatia, A., 2016. Community Detection for Cold Start Problem in Personalization: Community Detection is Large Social Network Graphs Based on Users' Structural Similarities and Their Attribute Similarities. In *2016 IEEE International Conference on Computer and Information Technology (CIT)*. pp. 167–171. Available at: <http://ieeexplore.ieee.org/document/7876333/>.
- Blondel, V.D., Guillaume, J.-L., Lambiotte, R. and Lefebvre, E., 2008. Fast Unfolding of Communities in Large Networks. *Journal of Statistical Mechanics: Theory and Experiment*, 2008(October 2008), pp.1–12. Available at: <http://arxiv.org/abs/0803.0476%0Ahttp://dx.doi.org/10.1088/1742-5468/2008/10/P10008>.
- Bocu, R. and Bocu, D., 2014. Optimizing Protein Importance Assessment Through a Dijkstra-based Sequential Optimization Technique. In *Neural Networks, Fuzzy Systems, Evolutionary Computing and Automation*. pp. 207–212.
- Bocu, R. and Tabirca, S., 2009. Community Detection-based Analysis of The Human Interactome Network. *Proceedings of World Academy of Science Engineering and Technology*, 58(10), pp.297–302. Available at: <http://www.scopus.com/inward/record.url?eid=2-s2.0-79954539336&partnerID=40&md5=41b2f95add6e4e6db4f15f65818e98f8>.
- Bocu, R. and Tabirca, S., 2010. Protein Communities Detection Optimization Through an Improved Parallel Newman-Girvan Algorithm. In *9th RoEduNet IEEE International Conference*. pp. 380–385.
- Bocu, Razvan and Tabirca, S., 2009. Sparse Networks-based Speedup Technique for Proteins Betweenness Centrality Computation. *International Journal of Biological and Life Sciences*, 3(4), pp.976–983.
- Bolanos, M.E., Aviyente, S. and Bernat, E.M., 2010. Identifying Functional Clusters in The Brain using Phase Synchrony. In *IEEE International Conference on Acoustics, Speech and Signal Processing*. pp. 5446–5449.



- Bota, A., Kresz, M. and Zavalnij, B., 2015. Adaptations of the k-Means Algorithm to Community Detection in Parallel Environments. In *2015 17th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*. IEEE, pp. 299–302. Available at: <http://ieeexplore.ieee.org/document/7426098/>.
- Bu, Z., Xia, Z., Wang, J. and Zhang, C., 2013. Community Detection in Very Large Dense Network with Parallel Strategy. In *IEEE International Conference of IEEE Region 10 (TENCON 2013)*. IEEE, pp. 1–4.
- Budic, D., Skracic, K. and Bodrušić, I., 2019. Optimizing Mobile Radio Access Network Spectrum Refarming using Community Detection Algorithms. In *International Convention on Information and Communication Technology*. pp. 475–479.
- Choudhury, D., Bhattacharjee, S. and Das, A., 2013. An Empirical Study of Community and Sub-Community Detection in Social Networks Applying Newman-Girvan Algorithm. In *1st International Conference on Emerging Trends and Applications in Computer Science*. pp. 74–77.
- Clauset, a, Newman, M.E.J. and Moore, C., 2004. Finding Community Structure in Very Large Networks. *Phys. Rev. E*, 70, p.66111. Available at: <http://prola.aps.org/abstract/PRE/v70/i6/e066111>.
- Coleman, T.F. and More, J.J., 1983. Estimation of Sparse Jacobian Matrices and Graph Coloring Problems. *SIAM Journal on Numerical Analysis*, 20(1), pp.187–207.
- Cormen, T.H., Leiserson, C.E., Rivest, R.L. and Stein, C., 2009. *Introduction to Algorithms Third Edition*, The MIT Press.
- Cover, T.M. and Thomas, J.A., 2005. *Elements of Information Theory Second Edition*, United States of America: Wiley-Interscience.
- Daha, M.Y., Zahid, M.S.M., Alashhab, A. and Hassan, S.U., 2021. Comparative Analysis of Community Detection Methods for Link Failure Recovery in Software Defined Networks. In *International Conference on Intelligent Cybernetics Technology & Applications*. pp. 157–162.
- Danon, L., Albert, D. and Duch, J., 2005. Comparing Community Structure Identification. *Journal of Statistical Mechanics: Theory and Experiment*, 2005(September 2005), pp.1–9.
- Despalatović, L., Vojković, T. and Vukičević, D., 2014. Community Structure in Networks: Girvan-Newman Algorithm Improvement. In *International Convention on Information and Communication Technology, Electronics and Microelectronics, MIPRO 2014*. pp. 997–1002.
- Donath, W.E. and Hoffman, A.J., 1973. Lower Bounds for the Partitioning of Graphs. *IBM Journal of Research and Development*, 17(5), pp.420–425. Available at: <http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=5391366>.



- Du, Y., Wang, J. and Li, Q., 2017. An Android Malware Detection Approach Using Community Structures of Weighted Function Call Graphs. *IEEE Access*, 5, pp.17478–17486.
- Duch, J. and Arenas, A., 2005. Community Detection in Complex Networks using Extremal Optimization. *American Physical Society*, 72(2), pp.1–5. Available at: <http://arxiv.org/abs/cond-mat/0501368><http://dx.doi.org/10.1103/PhysRevE.72.027104>.
- Ehsani, M. and Mansouri, R., 2023. BridgeCut: A New Algorithm for Balanced Partitioning of Signed Networks. *Research Square*, pp.1–23.
- Fan, R., Xu, K. and Zhao, J., 2017. A GPU-Based Solution for Fast Calculation of The Betweenness Centrality in Large Weighted Networks. *PeerJ Computer Science*, 3(2007), pp.1–23.
- Ferreira, L.N., Pinto, A.R. and Zhao, L., 2012. QK-Means: A Clustering Technique Based on Community Detection and K-Means For Deployment of Cluster Head Nodes. In *2012 IEEE World Congress on Computational Intelligence June*. IEEE, pp. 1–7.
- Fortunato, S., 2010. Community Detection in Graphs. *Physics Reports*, 486(3–5), pp.75–174.
- Fortunato, S. and Barthe, M., 2007. Resolution Limit in Community Detection. *Proceedings of the National Academy of Sciences of the United States of America*, 104(1), pp.36–41.
- Fortunato, S., Latora, V. and Marchiori, M., 2004. Method to Find Community Structures Based on Information Centrality. *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, 70(5), pp.1–13.
- Galluccio, L., Michel, O., Comon, P. and Hero, A.O., 2012. Graph Based K-Means Clustering. *Signal Processing*, 92(9), pp.1970–1984. Available at: <http://dx.doi.org/10.1016/j.sigpro.2011.12.009>.
- Gao, Q., 2010. Network Analysis Applied to a Bibliographic Network. In *IEEE International Conference on Social Computing/IEEE International Conference on Privacy, Security, Risk and Trust*. pp. 615–622.
- Girvan, M and Newman, M.E.J., 2002. Community Structure in Social and Biological Networks. *Proceedings of the National Academy of Sciences of the United States of America*, 99(12), pp.7821–7826. Available at: <http://arxiv.org/abs/cond-mat/0112110>.
- Good, B.H., De Montjoye, Y.A. and Clauset, A., 2010. Performance of Modularity Maximization in Practical Contexts. *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, 81(4), pp.1–20.
- Hafez, A.I., Hassanien, A.E., Fahmy, A.A. and Tolba, M.F., 2014. Community Detection in Social Networks by Using Bayesian Network and Expectation Maximization Technique. In *13th International Conference on Hybrid Intelligent Systems, HIS 2013*. pp. 209–214.



- Handcock, M.S., Raftery, A.E. and Tantrum, J.M., 2007. Model-Based Clustering for Social Networks. *Journal of the Royal Statistical Society. Series A: Statistics in Society*, 170(2), pp.301–354.
- Havens, Timothy C., Bezdek, J.C., Leckie, C., Chan, J., Liu, W., Bailey, J., Ramamohanarao, K. and Palaniswami, M., 2013. Clustering and Visualization of Fuzzy Communities in Social Networks. In *IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)*.
- Havens, Timothy C., Bezdek, J.C., Leckie, C., Ramamohanarao, K. and Palaniswami, M., 2013. A Soft Modularity Function For Detecting Fuzzy Communities in Social Networks. *IEEE Transactions on Fuzzy Systems*, 21(6), pp.1170–1175.
- Held, P., Krause, B. and Kruse, R., 2016. Dynamic Clustering in Social Networks Using Louvain and Infomap Method. In *2016 3rd European Network Intelligence Conference*. IEEE, pp. 61–68.
- Hu, X., Guo, J., Chen, X. and Zhao, X., 2017. Research of Signed Networks Community Detection Based on the Tightness of Common Neighbors. In *Proceedings - 2016 International Conference on Digital Home, ICDH 2016*. IEEE, pp. 155–159.
- Huang, H., Wang, X. and Yu, G., 2018. Community Detection Based on Unified Bayesian Nonnegative Matrix Factorization. In *2018 3rd IEEE International Conference on Cloud Computing and Big Data Analysis, ICCCBDA 2018*. IEEE, pp. 395–403.
- Ichimura, T., Yamasaki, A., Hara, A. and Takahama, T., 2009. Human Communication Network Based on the Classification Results of Personal Preferences by Using Self-Organizing Map. In *International Conference on Systems, Man dan Cybernetics*. pp. 418–423.
- Jamour, F., Skiadopoulos, S. and Kalnis, P., 2018. Parallel Algorithm for Incremental Betweenness Centrality on Large Graphs. *IEEE Transactions on Parallel and Distributed Systems*, 29(3), pp.659–672.
- Jisha, R.C., Indrajith, P.S. and Abhishek, S., 2021. Community Detection Using Graph Partitioning. *2021 2nd Global Conference for Advancement in Technology, GCAT 2021*, pp.1–6.
- Jungnickel, D., 2008. *Graphs, Networks and Algorithms Third Edition*,
- Karyotis, V., Tsitseklis, K., Sotiropoulos, K. and Papavassiliou, S., 2018. Enhancing Community Detection for Big Sensor Data Clustering via Hyperbolic Network Embedding. In *International Conference on Pervasive Computing and Communications Workshops*. pp. 266–271.
- Kirgizov, S., 2013. A New Graph Density. In *Self-Journal of Science*. pp. 1–4.
- Knyazev, A., 2015. Edge-enhancing Filters with Negative Weights. In *IEEE Global Conference on Signal and Information Processing*. pp. 260–264.



- Kong, B., Chen, H., Liu, W. and Zhou, L., 2012. A Dynamic Algorithm for Community Detection in Social Networks. In *World Congress on Intelligent Control and Automation*. pp. 350–354.
- Kong, B., Zhou, L. and Liu, W., 2012. Improved Modularity Based on Girvan-Newman Modularity. In *International Conference on Intelligent Systems Design and Engineering Application*. pp. 293–296.
- Lancichinetti, A. and Fortunato, S., 2011. Limits Of Modularity Maximization in Community Detection. *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, 84(6), pp.1–9.
- Lancichinetti, A., Fortunato, S. and Kertesz, J., 2009. Detecting The Overlapping and Hierarchical Community Structure in Complex Networks. *New Journal of Physics*, 11(March 2009), pp.1–18.
- Li, W. and Schuurmans, D., 2011. Modular Community Detection in Networks. In *Twenty-Second International Joint Conference on Artificial Intelligence Modular*. pp. 1366–1371.
- Lin, L., Lou, T., Fu, J., Ji, Z. and Xiao, D., 2011. A New Community Detection based on Agglomeration Mechanism. In *IEEE 2nd International Conference on Computing, Control and Industrial Engineering*. pp. 352–355.
- Lin, S.Z., Chen, S.H., Wang, C.C. and Zen, C.D., 2011. A Comparison of Technology Trajectories Between the Global and the United States in Smart Grid. In *IEEE International Conference on Industrial Engineering and Engineering Management*. pp. 1028–1032.
- Liu, G., Meng, K., Guo, H., Pan, L. and Li, J., 2016. Automatic Threshold Calculation Based Label Propagation Algorithm for Overlapping Community. In *2016 IEEE First International Conference on Data Science in Cyberspace (DSC)*. pp. 382–387. Available at: <http://ieeexplore.ieee.org/document/7866155/>.
- Liu, J.S., Yu, L.Y.Y., Hung, S.C., Shen, C.C. and Lee, S.J., 2015. Technological Change as Evolving Citation Networks: The Analysis of Proton Exchange Membrane Fuel Cell. In *Portland International Conference on Management of Engineering and Technology*. pp. 2060–2067.
- Liu, Qun, Peng, Z., Gao, Y. and Liu, Qian, 2012. A New K-Means Algorithm for Community Structures Detection Based on Fuzzy Clustering. In *2012 IEEE International Conference on Granular Computing*. IEEE, pp. 1–5. Available at: <http://ieeexplore.ieee.org/document/6468579/>.
- Liu, W. and Chen, L., 2013. Community Detection in Disease-Gene Network Based on Principal Component Analysis. *Tsinghua Science and Technology*, 18(5), pp.454–461.
- Liu, X., Murata, T. and Wakita, K., 2014. A Unified Modularity by Encoding the Similarity Attraction Feature into the Null Model. In *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*. pp. 521–



528.

- Ljucovi, J. and Tomovic, S., 2016. Analyzing Clusters in the University of Montenegro Collaboration Network. In *5th Mediterranean Conference on Embedded Computing*. pp. 264–267.
- Lu, B., 2012. Community Detection Algorithm using The Definition of Community. In *International Conference on Wavelet Active Media Technology and Information Processing*. pp. 16–19.
- Lu, H., Zhao, Q., Sang, X. and Lu, J., 2020. Community Detection in Complex Networks Using Nonnegative Matrix Factorization and Density-Based Clustering Algorithm. *Neural Processing Letters*, 51(2), pp.1731–1748. Available at: <https://doi.org/10.1007/s11063-019-10170-1>.
- Lu, Y.L., Jie, T., Hao, G. and Yu, W., 2012. Infomap Based Community Detection in Weibo Following Graph. In *2012 2nd International Conference on Instrumentation and Measurement, Computer, Communication and Control*. IEEE, pp. 1220–1222.
- Lunagariya, D.C., Somayajulu, D.V.L.N. and Khrisna, P.R., 2014. SE-CDA: A Scalable and Efficient Community Detection Algorithm. In *IEEE International Conference on Big Data*. p. 877.
- Luo, F. and Scheuermann, R.H., 2006. Detecting Functional Modules from Protein Interaction Networks. In *First International Multi-Symposiums on Computer and Computational Sciences*. pp. 2–9.
- Mairisha, M. and Saptawati, G.A.P., 2016. Improved Modularity for Community Detection Analysis in Weighted Graph. *2016 4th International Conference on Information and Communication Technology, ICoICT 2016*, 4(c).
- Mitchell, M. and Newman, M., 2002. Complex Systems Theory and Evolution. *Encyclopedia of Evolution*, pp.1–5.
- Moon, S., Lee, J. and Kang, M., 2014. Scalable Community Detection from Networks by Computing Edge Betweenness on MapReduce. In *International Conference on Big Data and Smart Computing*. pp. 14–17.
- Narayanan, T. and Subramaniam, S., 2014. A Newtonian Framework for Community Detection in Undirected Biological Networks. *IEEE Transactions on Biomedical Circuits and Systems*, 8(1), pp.65–73.
- Newman, M., 2004. Detecting Community Structure in Networks. *The European Physical Journal B - Condensed Matter and Complex Systems*, 38(2), pp.321–330.
- Newman, M.E.J., 2005. A Measure of Betweenness Centrality Based on Random Walks. *Social Networks*, 27(1), pp.39–54.
- Newman, M.E.J., 2004. Analysis of Weighted Networks. *Physical Review E - Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics*, 70(5), p.9.



- Newman, M.E.J., 2003. The Structure and Function of Complex Networks, 45(2), pp.167–256.
- Newman, M.E.J., Cantwell, G.T. and Young, J.G., 2020. Improved Mutual Information Measure for Clustering, Classification, and Community Detection. *Physical Review E*, 101(4), pp.1–12.
- Newman, M.E.J. and Girvan, M., 2003. Finding and Evaluating Community Structure in Networks. *Physical Review E*, 69(2), pp.1–16. Available at: <http://arxiv.org/abs/cond-mat/0308217><http://dx.doi.org/10.1103/PhysRevE.69.026113>.
- Nita, A., Manolache, S., Ciocanea, C.M. and Rozyłowicz, L., 2017. Characterizing Protected Areas Management using Ego-networks. In *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*. pp. 642–643.
- de Oliveira, J.E.M. and Quiles, M.G., 2014. Community Detection in Complex Networks Using Coupled Kuramoto Oscillators. In *2014 14th International Conference on Computational Science and Its Applications*. pp. 85–90.
- Opsahl, T., Agneessens, F. and Skvoretz, J., 2010. Node Centrality in Weighted Networks: Generalizing Degree and Shortest Paths. *Social Networks*, 32(3), pp.245–251.
- Palach, J., 2014. *Parallel Programming with Python*, Available at: www.it-ebooks.info.
- Porter, M. a., Onnela, J.-P. and Mucha, P.J., 2009. Communities in Networks. *American Mathematical Society*, 56(9), pp.1082–1097. Available at: <http://arxiv.org/abs/0902.3788>.
- Qi, X., Song, H., Wu, J., Fuller, E., Luo, R. and Zhang, C.Q., 2017. Eb&D: A New Clustering Approach for Signed Social Networks Based on Both Edge-Betweenness Centrality and Density of Subgraphs. *Physica A: Statistical Mechanics and its Applications*, 482, pp.147–157.
- Raghavan, U.N., Albert, R. and Kumara, S., 2007. Near Linear Time Algorithm to Detect Community Structures in Large-Scale Networks. *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, 76(3), pp.1–12.
- Rahul, Srivastava, S. and Kumar, P., 2020. Comparative Study of Clustering Approaches in Rumor Source Localization Algorithm in Social Networks. In *International Conference on Electronics and Sustainable Communication Systems*. pp. 835–843.
- Rosvall, M., Axelsson, D. and Bergstrom, C.T., 2009. The Map Equation. *European Physical Journal: Special Topics*, 178(1), pp.13–23.
- Rouhonen, K., 2013. *Graph Theory*, Available at: <http://www.jstor.org/stable/3620535?origin=crossref>.
- Saputri, M.S., Wibisono, A., Krisnadhi, A., Yohanes, A.Y.L., Faisal, T.A., Utama,



- A.W., Ariefa, M.A.M., Ramadhani, A. and Muda, A., 2018. Browsing Behavior Analysis from Wi-Fi Logs Based on Community Detection: Case Study on Educational Institution. In *International Workshop on Big Data and Information Security*. IEEE, pp. 87–92.
- Sarswat, A. and Guddeti, R.M.R., 2018. A Novel Overlapping Community Detection using Parallel CFM and Sequential Nash Equilibrium. In *2018 10th International Conference on Communication Systems and Networks*. IEEE, pp. 649–654.
- Schaeffer, S.E., 2007. Graph Clustering. *Computer Science Review*, 1(1), pp.27–64.
- Shen, H., Cheng, X., Cai, K. and Hu, M., 2008. Detect Overlapping And Hierarchical Community Structure in Networks. *Physica A: Statistical Mechanics and its Applications*, 388(8), pp.1706–1712.
- Shruthi .S, J.A.M. and Anuroop, P.R., 2017. Improvisation of Cluster Efficiency using Min-Cut Algorithm in Social Networks. In *International Conference on Communication and Signal Processing*. pp. 1641–1644.
- Şimşek, A. and Kara, R., 2018. Using Swarm Intelligence Algorithms to Detect Influential Individuals for Influence Maximization in Social Networks. *Expert Systems with Applications*, 114, pp.224–236.
- Sutaria, K., Joshi, D., Bhensdadia, C.K. and Khalpada, K., 2015. An Adaptive Approximation Algorithm for Community Detection in Social Network. In *Proceedings - 2015 IEEE International Conference on Computational Intelligence and Communication Technology, CICT 2015*. pp. 785–788.
- Tang, Y., Li, J., Zhao, G. and Wang, Y., 2016. Research on The Algorithm of Community Discovery Based on The Standard Deviation of Edge – Betweenness. In *13th International Computer Conference on Wavelet Active Media Technology and Information Processing (ICCWAMTIP)*. pp. 135–138.
- Wang, W., Tang, B.F., Zhu, C., Liu, B., Li, A. and Ding, Z., 2020. Clustering using a Similarity Measure Approach Based on Semantic Analysis of Adversary Behaviors. In *IEEE Fifth International Conference on Data Science in Cyberspace*. pp. 400–406.
- Yang, Z., Algesheimer, R. and Tessone, C.J., 2016. A Comparative Analysis of Community Detection Algorithms on Artificial Networks. *Scientific Reports*, 6(July). Available at: <http://dx.doi.org/10.1038/srep30750>.
- Yanrui, D., Zhen, Z., Wenchao, W. and Yujie, C., 2014. Identifying the Communities in the Metabolic Network Using ‘Component’ Definition and Girvan-Newman Algorithm. In *14th International Symposium on Communications and Information Technologies*. pp. 42–45.
- Yin, X.C. and Liu, Z.G., 2018. Multiple Voting Label Propagation Algorithm for Overlapping Communities Detection. In *2018 3rd International Conference on Mechanical, Control and Computer Engineering*. IEEE, pp. 632–635.



- Zhang, Z., Gong, Y., Wang, K. and Gu, J., 2017. A Survey of Overlapping Community Detection Based on Multi-Label Propagation. In *2017 12th IEEE Conference on Industrial Electronics and Applications*. pp. 995–999.
- Zheng, Q. and Yang, B., 2017. A New Community Detection Method Based on Coupled Map Lattice Model. In *2017 Chinese Automation Congress*. pp. 3282–3285.
- Zhou, B.-D., Zhao, P. and Zhang, J.B., 2018. The Improved Estimation of Distribution Algorithms for Community Detection. In *3rd International Conference on Computational Intelligence and Applications (ICCIA)*. pp. 75–80.
- Zhou, Y., Cheng, H., Yu, J.X. and Xu Yu, J., 2009. Graph Clustering Based on Structural/Attribute Similarities. *Proceedings of the VLDB Endowment*, 2(1), pp.718–729. Available at: <http://dl.acm.org/citation.cfm?id=1687627.1687709>.
- Zolkepli, M., Dong, F. and Hirota, K., 2014. Application of Fuzzy Inference Engine as an Automatic Switch Between Ensembles of Clustering Methods. In *Joint 7th International Conference on Soft Computing and Intelligent Systems (SCIS) and 15th International Symposium on Advanced Intelligent Systems (ISIS)*. pp. 1164–1169.