













**Figure 7: An example of the graph. Each node has a different size, indicating its importance. The nodes are shown in different colors to indicate their status in the network. [http://acemap.sjtu.edu.cn/Academic\\_map/main.html](http://acemap.sjtu.edu.cn/Academic_map/main.html).**

map of science. Eigenfactor.org [4] builds a field-level interactive academic landscape to present the internal interrelation. In contrast, we pay more attention to the the dynamic navigation over different levels of the academic map and network analysis.

## 6. CONCLUSION

In this paper, we present a novel academic system, AceMap, which aims to process the big scholarly data, analyze the citation network and visualize the relationship among papers to help researchers grasp the academic big picture more conveniently and more intuitively. First we give the full conceptualization of AceMap. We discuss each part of AceMap and its (possible) implementation and corresponding significance. Next, we present our prototype system and show several screenshots of the current AceMap. Last but not least, we describe a clear and attainable blueprint of our future system. You are more than welcomed to check AceMap at anytime, as we sincerely want to conduct a project that could help the scholars and thus will keep updating this promising project.

## 7. ACKNOWLEDGMENTS

This work was partially supported by NSF China (No. 61532012, 61325012, 61271219, and 61428205).

## 8. REFERENCES

- [1] Apache solr. <http://lucene.apache.org/solr/>. The Apache Software Foundation.
- [2] Apache spark. <http://spark.apache.org/>. The Apache Software Foundation.
- [3] D3.js. <http://d3js.org/>. Mike Bostock.

- [4] Eigenfactor.org. <http://eigenfactor.org/>. Eigenfactor.org.
- [5] Google scholar. <https://scholar.google.com/>. Google.
- [6] Infobaleen. <http://www.infobaleen.com>. Infobaleen.
- [7] Map of science. <http://www.mapofscience.com/>. SciTech Strategies.
- [8] Web of science. [webofknowledge.com](http://webofknowledge.com). Thomson Reuters.
- [9] K. W. Boyack and R. Klavans. Creation of a highly detailed, dynamic, global model and map of science. *Journal of the Association for Information Science and Technology*, 65(4):670–685, 2014.
- [10] J. Freeman. Parallel algorithms for depth-first search. 1991.
- [11] M. Ley. The dblp computer science bibliography: Evolution, research issues, perspectives. In *String Processing and Information Retrieval*, pages 1–10. Springer, 2002.
- [12] Y. Liu, Z. Huang, Y. Yan, and Y. Chen. Science navigation map: an interactive data mining tool for literature analysis. In *Proceedings of the 24th International Conference on World Wide Web Companion*, pages 591–596. International World Wide Web Conferences Steering Committee, 2015.
- [13] U. N. Raghavan, R. Albert, and S. Kumara. Near linear time algorithm to detect community structures in large-scale networks. *Physical Review E*, 76(3):036106, 2007.
- [14] D. Shahaf, C. Guestrin, and E. Horvitz. Metro maps of science. In *Proceedings of the 18th ACM SIGKDD international conference on Knowledge discovery and data mining*, pages 1122–1130. ACM, 2012.
- [15] L. Shi, H. Tong, J. Tang, and C. Lin. Vegas: Visual influence graph summarization on citation networks.
- [16] A. Sinha, Z. Shen, Y. Song, H. Ma, D. Eide, B.-j. P. Hsu, and K. Wang. An overview of microsoft academic service (mas) and applications. In *Proceedings of the 24th International Conference on World Wide Web Companion*, pages 243–246. International World Wide Web Conferences Steering Committee, 2015.
- [17] A. Skupin, J. R. Biberstine, and K. Börner. Visualizing the topical structure of the medical sciences: a self-organizing map approach. *PLoS one*, 8(3):e58779, 2013.
- [18] J. Tang, J. Zhang, L. Yao, J. Li, L. Zhang, and Z. Su. Arnetminer: extraction and mining of academic social networks. In *Proceedings of the 14th ACM SIGKDD international conference on Knowledge discovery and data mining*, pages 990–998. ACM, 2008.
- [19] J. L. Träff. A note on (parallel) depth-and breadth-first search by arc elimination. *arXiv preprint arXiv:1305.1222*, 2013.
- [20] D. A. Vilhena, J. G. Foster, M. Rosvall, J. D. West, J. Evans, C. T. Bergstrom, J. Sørensen, and D. Baldassarri. Finding cultural holes: how structure and culture diverge in networks of scholarly communication. *Sociological Science*, 1:221–238, 2014.
- [21] W. L. Woon and S. Madnick. Semantic distances for technology landscape visualization. *Journal of Intelligent Information Systems*, 39(1):29–58, 2012.