

{tag} International Journal of Computer Applications  
Foundation of Computer Science (FCS), NY, USA

[Volume 129](#)

-  
[Number 7](#)

Year of Publication: 2015

Authors:

Ananthi Sheshasaayee, Roby Jose

10.5120/ijca2015906887

{bibtex}2015906887.bib{/bibtex}

## Abstract

Maintainability of the software is one of the key quality while evaluating software product. Of the overall software development cost, major stake is employed at the maintenance phase. Maintenance time of software is always greater than its development time, so it becomes essential to measure the maintainability of software so that maintenance operational time can be brought down. While going over the prevailing knowledge of literature it is understood that maintenance cost can be regulated by using software metrics at the design phase. There is substantial works in proving that machine learning algorithms is a suitable alternative for many domains of computational sciences including software engineering. This paper is aimed at carrying out a detailed study on the usage of machine learning approaches in the prediction, assessment and evaluation of software maintainability

## References

1. Edelstein, D. Vera. "Report on the IEEE STD 1219–1993—standard for software

maintenance." ACM SIGSOFT Software Engineering Notes 18.4 (1993): 94-95.

2. Lientz, B. P., Swanson, E. B., 2000. Software Maintenance Management, Addison - Wesley Reading, MA.

3. Li, Wei, and Sallie Henry. "Object-oriented metrics that predict maintainability." Journal of systems and software 23.2 (1993): 111-122

4. S. Henry and S. Wake, "Predicting Maintainability with Software Quality Metrics," Software Maintenance: Research and Practice, vol. 3, pp. 129-143, 1991.

5. Li, Wei. "Another metric suite for object-oriented programming." Journal of Systems and Software 44.2 (1998): 155-162

6. Niessink, Frank, and Hans Van Vliet. "Two case studies in measuring software maintenance effort." Software Maintenance, 1998. Proceedings., International Conference on. IEEE, 1998.

7. Fioravanti, Fabrizio, and Paolo Nesi. "Estimation and prediction metrics for adaptive maintenance effort of object-oriented systems." Software Engineering, IEEE Transactions on 27.12 (2001): 1062-1084.

8. Dagpinar, Melis, and Jens H. Jahnke. "Predicting maintainability with object-oriented metrics-an empirical comparison." 20th Working Conference on Reverse Engineering (WCRE). IEEE Computer Society, 2003.

9. Misra, Subhas Chandra. "Modeling design/coding factors that drive maintainability of software systems." Software Quality Journal 13.3 (2005): 297-320.

10. Thwin, Mie Thet, and Tong-Seng Quah. "Application of neural networks for software quality prediction using object-oriented metrics." Journal of systems and software 76.2 (2005): 147-156.

11. Stamelos, Ioannis, et al. "On the use of Bayesian belief networks for the prediction of software productivity." Information and Software Technology 45.1 (2003): 51-60.

12. Van Koten, Chikako, and A. R. Gray. "An application of Bayesian network for predicting object-oriented software maintainability." Information and Software Technology 48.1 (2006): 59-67.

13. Zhou, Yuming, and Hareton Leung. "Predicting object-oriented software maintainability using multivariate adaptive regression splines." Journal of Systems and Software 80.8 (2007): 1349-1361.

14. Prasanth, N. Narayanan, S. Ganesh, and G. A. Dalton. "Prediction of maintainability using software complexity analysis: An extended FRT." Computing, Communication and Networking, 2008. ICCN 2008. International Conference on. IEEE, 2008

15. Elish, Mahmoud O., and Karim O. Elish. "Application of tree net in predicting object-oriented software maintainability: A comparative study." Software Maintenance and Reengineering, 2009. CSMR'09. 13th European Conference on. IEEE, 2009.

16. Kaur, Arvinder, Kamaldeep Kaur, and Ruchika Malhotra. "Soft computing approaches for prediction of software maintenance effort." International Journal of Computer Applications 1.16 (2010).

17. Ping, Liang. "A Quantitative Approach to Software Maintainability Prediction." Information Technology and Applications (IFITA), 2010 International Forum on. Vol. 1. IEEE, 2010.

18. Jin, Cong, and Jin-An Liu. "Applications of Support Vector Machine and Unsupervised Learning for Predicting Maintainability Using Object-Oriented Metrics." Multimedia and Information Technology (MMIT), 2010 Second International Conference on. Vol. 1. IEEE, 2010.

19. Malhotra Ruchika, and Anuradha Chug. "Software maintainability prediction using

machine learning algorithms." (2012).

### **Index Terms**

Computer Science

Software Engineering

### **Keywords**

Machine learning algorithms, Maintainability Prediction, Software Maintainability Prediction Models and Metrics, Software metrics.