

# Estimation of Effort Methods in Development of Software using Machine Learning Techniques

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**Abstract:** *Software effort estimation accuracy is a critical factor for effective planning, control and delivering a successful software project within budget and time. Both overestimation and underestimation are major challenges to future software development, hence the continued need for accuracy in software effort estimation. The main objective of this study is to help researchers to know which machine learning techniques predict promising effort estimation accuracy in software development. In this paper, the performance of the machine learning ensemble technique is examined with a single technique based on two of the most commonly used accuracy evaluation metrics.*

**Keywords:** Accuracy, Metrics, Control, Software & Estimation etc

## REFERENCES

- [1]. Shweta.KR etal. (2022),” IMPROVED ARTIFICIAL NEURAL NETWORK MODEL FOR
- [2]. SOFTWARE PROJECT COST ESTIMATION IN EARLIER STAGE”, International Journal of
- [3]. Mechanical Engineering, ISSN: 0974-5823 Vol. 7 No. 1 January, 2022.
- [4]. Gouthaman P, Suresh Sankaranarayanan, Prediction of Risk Percentage in Software Projects by Training Machine Learning Classifiers”, computers and electrical engineering (2021)
- [5]. DareenRyied Al-Tawal, MazenArafah. GhalebJalilSweis, “A model utilizing the artificial neural network in cost estimation of construction projects in Jordan”, ECAM (2020)
- [6]. Fangwei Ning, Yan Shia, MaolinCai, Weiqing Xu, Xianzhi Zhang, “Manufacturing cost estimation based on the machining process and deep learning method”, journal of manufacturing systems (2020)
- [7]. Erik Matel, FaridaddinVahdatikhaki, SiavashHosseinyalamdary, Thijs Evers,HansVoordijk, “An artificial neural network approach for cost estimation of engineering services”, International journal of construction management (2019)
- [8]. Mahmood Mohd Al Asheeri, Mustafa Hammad, “Machine Learning Models for Software Cost Estimation” International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT) IEEE (2019)
- [9]. Michal Juszczuk ,AgnieszkaLesniak, Krzysztof Zima, “ANN Based Approach for Estimation of Construction Costs of Sports Fields”, wiley (2018)
- [10]. PrzemysławPospieszny ,BeataCzarnacka-Chrobot , Andrzej Kobylinski, “An effective approach for software project effort and duration estimation with machine learning algorithms,The Journal of Systems & Software (2017)
- [11]. T.M.S. Elhag, A.H. Boussabaine, “An Artificial Neural System for Cost Estimation of Construction Projects”, In: Hughes, W (Ed.), 14th Annual ARCOM Conference, 9-11 September Vol. 1, 219-26. (1998)
- [12]. Richa Yadav, Monica Vyas, Vivekanada Vyas, Sanket Agrawal, “Cost Estimation Model (Cem) for Residential Building using Artificial Neural Network”, (IJERT) Vol.5(1) (2016)
- [13]. H. Murat Gunaydin, S. ZeynepDogan, “A neural network approach for early cost estimation of structural systems of buildings”, International journal of project management (2004)
- [14]. Idri, A, Amazal, F.A., Abran, A., (2015). “Analogy-based software development effort estimation: a systematic mapping and review.” Inf. Softw. Technol. 58, 206–230. doi: 10.1016/j.infsof.2014.07.013 .

- [15]. Wen, J., Li, S., Lin, Z., Hu, Y., Huang, C., (2015). “Systematic literature review of machine learning based software development effort estimation models.” *Inf. Softw. Technol.* 54, 41–59. doi: 10.1016/j.infsof.2011.09.002 .
- [16]. Elish, M.O., Helmy, T., Hussain, M.I., 2013. “Empirical study of homogeneous and heterogeneous ensemble models for software development effort estimation.” *Math. Probl. Eng* 2013. doi: 10.1155/2013/312067.