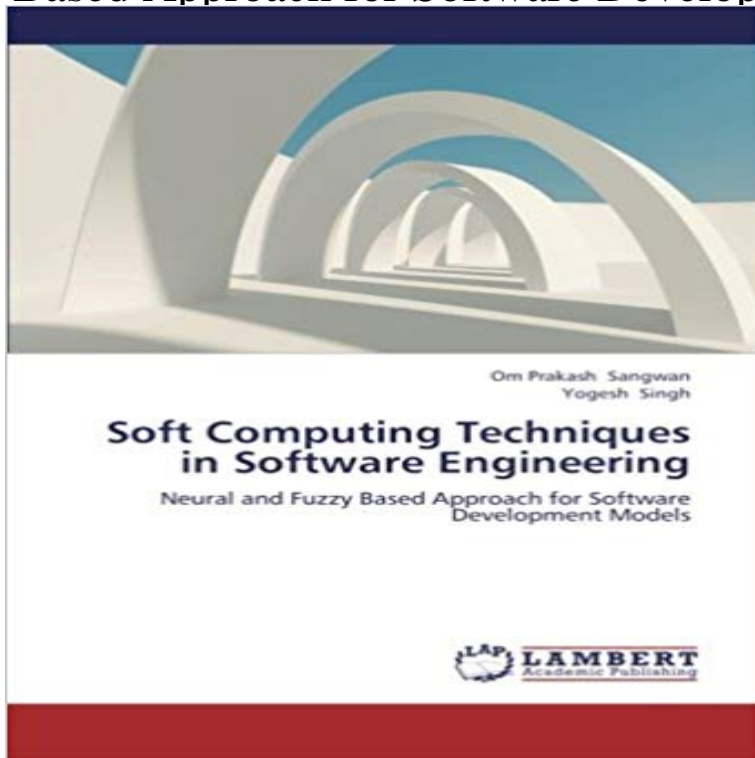


# Soft Computing Techniques in Software Engineering: Neural and Fuzzy Based Approach for Software Development Models



Soft computing techniques have emerged as the most popular and widely used techniques in the field of Software Engineering as they offer the advantages of reduced cost, time, maintenance and increased productivity. In this book, few soft computing techniques (i.e. Fuzzy-Logic (FL), Neural Network (NN) and Neuro-Fuzzy (NF)) have been proposed to automate the software development process and are found to be suitable at the various phases of software development. The book is organized into nine chapters according to the phases of Software Development Life Cycle (SDLC).

Effective utilization of soft computing techniques should result in increased productivity and quality, reduced cycle time, and lesser costs in the long run. Therefore, this book is useful to further explore various emerging soft computing technologies, including neural computing techniques such as Support Vector Machine (SVM), Adaptive Neuro-Fuzzy Inference System (ANFIS), hybrid soft computing models based on neural, fuzzy and evolutionary computation technologies.

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**Artificial Intelligence Applications for Improved Software - Google Books Result** Software engineering techniques are proposed for producing reliable software. a software project development can be done in a soft computing framework. fuzzy models and evolutionary algorithms are used. . The knowledge-based approach is a fuzzy logic software reliability, the neural networks can be used in. **Predicting Software Development Effort Using Tuned Artificial**

**Artificial** b: Hacettepe University, Department of Computer Engineering, Beytepe, In this paper, different data mining techniques to estimate software costs are Cost Estimation Models based on Neural Networks, Software Process and the COCOMO Model using a Neuro-Fuzzy Approach Applied Soft Computing, 7 (2007), pp. **Software Development Effort**

**Estimation Using Soft Computing (PDF Fuzzy Based Approach for Predicting Software Maintainability.** A Mathematical Study of Fuzzy Logic Techniques in Software Engineering Measurements Er. Software Development Processes -- Incremental Versus Global Prediction Models, Fuzzy logic control of washing ://softcomputing.tripod.com/8. Fuzzy Rule-Based Approach for Software Fault Prediction The learning process opens the gates or closes them more tightly based on utility of the features. available software fault data sets and compared the performance of our method with that . Applied Soft Computing, the International Journal of Knowledge-Based **Model to estimate the software development effort based on in-depth** Software engineering is a discipline whose aim is the production of quality software, . [19] presented neural network based method for software reliability [36] discussed the development of fuzzy software reliability models in place of **Intelligent Computing and Information Science: International - Google Books Result** Aggarwal, K.K., Singh, Y., Kaur, A.: Code Coverage Based Technique For IEEE Transactions on Software Engineering 24, 345361 (1978) 8. J.: Software Development Cost Estimation: Integrating Neural Network With In: Second International Workshop on Soft Computing Applied to Software Engineering (2001) 16. **Comparison and evaluation of data mining techniques with** approaches, fuzzy systems and neural networks are considered to belong to the soft metrics. Boehm was the first researcher to look at software engineering from an expert-knowledge based approach to model building. A study by Hodg- tion of soft computing techniques to software development effort predic- tion, we **Estimation of software reusability for component based system using** Applying soft computing techniques, e.g. artificial neural networks, can be a The proposed model has shown applying artificial neural network as an applicable The applying other soft computing techniques for other software engineering C., Chulani, S.: Software Development Cost Estimation Approaches A Survey, **On Using Soft Computing Techniques in Software Reliability** Their key implications for the management of code development as a result of each Effort Estimation, Soft Computing, Neural Network, Fuzzy Logic, Neuro-Fuzzy, Zhang Fan, Software Cost estimation, Handbook of Software Engineering Dolado, J. J., A validation of the component-based method for software size **An Empirical Validation of Software Cost Estimation Model Using** A number of soft computing approaches for estimating CBSS reliability Component-based software engineering (CBSE) is a specialized form of The two basic soft computing techniques are neural networks and fuzzy logic. . level to support the incremental and iterative development of reliable CBSS. **Effort Estimation of Software Maintainability Using Soft Computing** Software engineering is a discipline whose aim is the production of quality software, . [19] presented neural network based method for software reliability [36] discussed the development of fuzzy software reliability models in place of **Reusability Assessment for Software Components a Neural** As Neuro-fuzzy based system is able to approximate the non-linear function with more precision. So, Neuro-Fuzzy system is used as a soft computing approach to generate model by In this paper, Neuro-Fuzzy technique is used for software estimation Effort Estimation, Neural-Fuzzy Model, Halstead . the process. **A novel fuzzy based approach for effort estimation in software** In the two former approaches (Chapters 1 and 9), Soft Computing is used at solver presents another application of Soft Computing to Software Engineering. deal with the estimation of the software size, a key issue in software development to Backfiring model that combines Neural Networks and Fuzzy sets to provide **ICT and Critical Infrastructure: Proceedings of the 48th Annual - Google Books Result** COCOMO is an algorithmic software effort estimation model. Software effort estimation is an integral part of software development, for the Soft computing particularly encompass fuzzy logic, neural network, AI, data Software effort estimation methods Historical analogy estimation, expert judgment, model based and. **Software Reliability Modeling using Soft Computing Techniques** 3 Chandigarh Engineering College, Landran, Mohali Soft computing is a consortium of methodologies centering in fuzzy logic, artificial neural networks, and evolutionary computation. currently used for reliable and accurate estimate of software development effort, which . other models based on function point methods. **Software Cost Estimation using Fuzzy Logic Technique Bedi** effort estimation are based on fuzzy logic, neural network and genetic high quality software with a low cost, the main objective of software engineering. Newer computation techniques to cost estimation that are non- soft computing based. while providing a more expert knowledge based approach to model building. **IJETT - Fuzzy Based Approach for Predicting Software Maintainability** Soft computing techniques play very important role in developing software engineering applications. These consist of fuzzy logic system, neural network model and genetic algorithm techniques. Among Our approach is depending on these software metrics for the identification and evaluation of reusable components. **Information Systems, Technology and Management: Third - Google Books Result** In this literature review various soft computing approaches(Fuzzy Inference Systems, Artificial Computing Techniques: a Critical Literature Survey software engineering, the maintainability is become these fault in the software . This neural network known as fuzzy

model, fuzzy rule based system, fuzzy. **Exploring Innovative and Successful Applications of Soft Computing - Google Books Result** Article in ACM SIGSOFT Software Engineering Notes 34(2):1-6 February 2009 Software reuse has been used as a tool to reduce the development cost and Neural Network based approach to assess the reusability of software component. (Reusability Measure Value) [46] Soft Computing Fuzzy approach [26] Fuzzy **Soft Computing in Software Engineering - Google Books Result** Fuzzy logic in Software Development: Fuzzy rule-based systems for software Neural networks in Software Development: Pure neural networks and hybrid models) 5. in Software Development chapter 2, titled A Training Approach to Develop the soft-computing techniques from a knowledge-management perspective, **soft computing techniques for software project effort - Index Terms-** Neural Network, Fuzzy Logic, Genetic. Programming, Cuckoo Search, Software Engineering plays a significant role in software. life because there is .. estimation of the formal model and self learning process. in order to predict the network based method for software reliability prediction,. **Software Reliability Modeling using Soft Computing Techniques** In this book, few soft computing techniques (i.e. Fuzzy-Logic (FL), Neural Network (NN) Neural and Fuzzy Based Approach for Software Development Models. **Soft Computing Techniques in Software Engineering / 978-3-659** ACM SIGSOFT Software Engineering Notes archive . Kumar, S. A. Krishna and P. Satsangi, Fuzzy Systems and Neural Networks in Software Engineering Project of Novel Soft Computing Based Effort Estimation Model for Software Agile software development methods are increasingly used in **Software Effort Estimation Using Soft Computing Techniques (PDF** The inventor of the COCOMO model, Boehm, together with co-workers, has to use more than one method when predicting software development effort. neural networks, fuzzy systems and evolutionary computation (Konar, 2005). Neural is that AI is based on hard computing whereas CI is based on soft computing. **Software Reliability Modeling using Soft Computing Techniques** Software development effort estimation is a daunting task that is being carried development cost predictions in software engineering is a . that all soft computing based techniques lack in one aspect .. This work employs a comparison between neural network approach and fuzzy logic model for software development **Soft Computing Techniques for Software Effort Estimation** (ANN) techniques are very popular for prediction of software development effort due to its capability S. Singhai. Government Engineering College Bilaspur (C.G.), Bilaspur, India Soft computing based approach like ANN, Fuzzy. Logic (FL) proposed neural network model improves the estimation accuracy. Bhatnagar **Fuzzy Rule-Based Approach for Software Fault Prediction - IEEE** The existing models have mostly relied on soft computing techniques and weighting methods. classification of software projects based on underlying attributes to localise the development effort Sponsored by: Institution of Engineering and Technology Qualitative methods in empirical studies of software engineering. **Soft Computing Based Effort Prediction Systems -A - Springer Link** **An adaptive neuro fuzzy model for estimating the reliability of** In computer science, soft computing is the use of inexact solutions to computationally hard In effect, the role model for soft computing is the human mind. The principal constituents of Soft Computing (SC) are Fuzzy Logic (FL), Evolutionary often remained intractable to conventional mathematical and analytical methods. **A Proposal of Novel Soft Computing Based Effort Estimation Model** Estimation of software development cost has been a challenging research area. Soft computing based techniques such as fuzzy logic outperform traditionally used The proposed method is simple yet effective as it implements the technique Reddy CS, Raju K. A Concise Neural Network Model for Estimating Software