Estimating Development Effort of Software Projects using ANFIS

Abstract

Software Effort Prediction is the process of estimating the effort required to develop software. Effectively controlling the expensive investment of software development is achieved by accurately estimating the effort. Effort estimation at the early stage of software development is very difficult because of lot of uncertainty in input parameters which decides the software effort. Adaptive Neuro fuzzy Inference system (ANFIS) model deals effectively with uncertainty and provides reliable effort estimates In this paper ANFIS is proposed for software effort estimation is discussed. Dataset used for analysis purpose is of COCOMO II format which is the 93, 63 Historic dataset of NASA. COCOMO II consists of 17 Effort multipliers, 5 Scale factors, 1 LOC. Attributes like RUSE, PCON, and SITE play a least significant role in predicting the effort in COCOMO II Model these attributes are discarded in this approach. The ANFIS is modeled for several type of membership functions like Gaussian curve, Difference of sigmoidal membership,
Gaussian combination membership, Generalized bell shaped membership, Product of sigmoidal membership, Trapezoidal membership, Triangular membership functions. From the experimental results, it was concluded that the proposed ANFIS model using Trapezoidal membership function has low MMRE (Mean Magnitude of Relative Error) than the above mentioned membership functions.

References


Index Terms

Computer Science

Emerging Trends in Technology

Keywords

Software Cost Estimation, Adaptive Neuro Fuzzy Inference System (anfis), Effort, Constructive Cost Model (cocomo), Mean Magnitude Of Relative Error (mmre).