Abstract

Object oriented software metrics are computed and used in predicting software quality attributes of object oriented systems. Mapping software metrics to software quality attributes like fault prediction is a complex process and requires extensive computations. Many models have been proposed for fault prediction. Since accuracy is of prime importance in prediction models they are being constantly improved through various research studies. Artificial Neural network (ANN) has gained immense popularity due to its adaptability to the problem at hand by training with known data. Back propagation is a widely used ANN training technique. However the back propagation technique leads to slow convergence rate and an impending threat of getting caught in local minima. In this paper we explore the Particle Swarm Optimization (PSO) technique as an alternative to optimize the weights of ANN for fault prediction in object oriented systems. We evaluate the effect on prediction accuracy that PSO brings to ANN compared to other techniques like BP and Genetic Algorithm (GA). We also evaluate prediction accuracy improvements by optimizing the various parameters of PSO.

Refer
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Improving Fault Prediction using ANN-PSO in Object Oriented Systems

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