

IMPROVING OF TURNING PROCESS EFFICIENCY BY USING HYBRID ANFIS-ANTS SYSTEM

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Abstract: *Research of efficiency of multi-pass turning processes has significant practical importance. Non-traditional optimization techniques such genetic algorithms (GA), artificial neural networks (ANN) and PSO optimization are increasingly used to solve optimization problems. This paper presents a new multi-objective optimization technique, based on ant colony optimization algorithm (ACO), to optimize the turning processes. Three conflicting objectives, production cost, operation time and cutting quality are simultaneously optimized. An objective function based on maximum profit in operation has been used. The proposed approach uses adaptive neuro-fuzzy inference system (ANFIS) system to represent the manufacturer objective function and an ant colony optimization algorithm (ACO) to obtain the optimal objective value. New evolutionary ACO is explained in detail.*

Key words: *turning, efficiency, parameter optimization, ant colony system, ANFIS*



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