Two Kinds of Novel Evolutionary Fuzzy Controllers* — Control Algorithm Analysis

Wang Pan[1,2*], Xu Chengzhi[1], Zhang Jianjian[1], Wan Junkang[1]
[1]Wuhan University of Technology, Wuhan, 430070, P.R. China
[2]Huazhong University of Science and Technology, Wuhan, 430074, P.R. China
E-mail: jfpwang@tom.com **Tel:** 86-27-87858435

ABSTRACT

This paper presents two kinds of adaptive fuzzy control strategies based on evolutionary computation (EC). Principles, methods and steps of these two algorithms are analyzed. In these strategies, some key parameters of two self-regulated fuzzy controllers (a multi-regulated-factors fuzzy controller and qualitative-quantitative self-regulated fuzzy controller) are optimized by EC. Both linear and nonlinear quantization functions as quantized formula are employed and ITAE index is applied as fitness function.

Keywords: Evolutionary Computation, Complex Systems, Fuzzy Control

* This work was partly supported by NSF of China (Grant No.: 60174039)