

Design of Fuzzy-PID controller Optimized by Imperialist Competitive Algorithm to control of AVR system

Saber Falahati^{1*}, Seyed Abbas Taher² and Masoud Hajiakbari³

1*- Corresponding Author: Electrical and Computer Department, Kashan University, Kashan, Iran.

1*- Technical Expert, Esfahan Regional Electric Company

2- Electrical and Computer Department, Kashan University, Kashan, Iran.

3- Electrical and Computer Department, Esfahan University of Technology, Esfahan, Iran.

^{1*}s_falahati@yahoo.com, ²sataher@kashanu.ac.ir, ³M.hajiakbari@ec.iut.ac.ir

Abstract- In this paper a new method has been proposed for control of AVR system. For this purpose Fuzzy-PID controller has been employed. This controller has four parameters that their values have been obtained with optimization and imperialist competitive algorithm due to its high speed and accuracy. By using of proposed controller it is possible to control the system more effective. To illustrate good performance of proposed Fuzzy-PID, simulations have been carried out in MATLAB environment and results have been compared with PID and FOPID controllers. Results of simulations show good performance of suggested controller.

Keywords- Imperialist Competitive Algorithm, Optimization, Automatic Voltage Regulator, Fuzzy-PID