以進化演算法應用於德基水庫即時操作之研究

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摘要

Grammatical evolution (GE) is a new computing architecture in the area of
optimization. It provides system identification in a transparent and structured way; a fittest
function type of input-output relationship will be obtained automatically from this method.
The present study aims at the application of GE to establish the inflow prediction model
and real-time operation of Der-Ji Reservoir. A multi-regressive (MR) method and a GE
model were fitted to the inflow data series and their performances were compared.
Reservoir real-time operation policies were formulated through a complex simulation
procedure. The optimal release was based on inflow prediction by GE and achieved
through genetic algorithm (GA). The results indicate that this new model, GE and GA, is
better than traditional reservoir operation by rule curves.

關鍵字：grammatical evolution, real-time operation, genetic algorithm