

Spatial rainfall prediction using optimal features selection approaches

APPENDIX

Procedure of GAANN (genetic algorithm-artificial neural networks)

-Generate initial population (of N individuals)

Includes selected set of inputs, number of nodes in hidden layer, bias correction for each node, and learning parameters for hidden layer,

Compute fitness of each individual,

Create and train feed-forward ANN via back-propagation learning paradigm with each individual properties using training and cross-validation datasets,

Current generation = initial generation,

-While stopping criteria not satisfied repeat

Begin new generation

Includes selected set of inputs, number of nodes in hidden layer, bias correction for each node, and learning parameters for hidden layer,

Select two parents from the current generation to mate, biased towards the fitter individuals,

Apply one-point cross over to produce offspring (produce $P_c \times N$)

Apply one-point mutation to offspring compute the fitness of the two offspring (produce $P_m \times N$)

Replace the offspring in the new generation

Until new generation is full

Compute fitness of each new individual,

Create and train feed-forward ANN via back-propagation learning paradigm with each individual properties using training and cross-validation datasets,

New generation = current generation,

-End while

-Test the testing dataset with the best created ANN (created network with the least MSE)

-End