

Imperialist competitive algorithm for reliability

Afonso et al. (2013) propose ICA for reliability optimization.

Questions

1. Explain the importance of reliability of a system. How can redundancy be exploited to increase reliability? Why is optimization needed? What methods have been used to increase reliability? Describe at least two beside ICA.
2. Explain and implement ICA on an artificial example. Compare the results to those obtained by another method. What are the advantages and shortcomings of the methods for the particular example you considered?

References

Afonso, L. D., Mariani, V. C., and dos Santos Coelho, L. (2013). Modified imperialist competitive algorithm based on attraction and repulsion concepts for reliability-redundancy optimization. *Expert Systems with Applications*.