Optimization in dynamic environments

Kiranyaz et al. (2011) propose a multi-dimensional PSO algorithm.

Questions

1. Explain the term "dynamic environment" and the problems introduced by it. Describe how at least two other optimization methods could/ could not be adapted to dynamic environments.

2. Implement the classic PSO as described by Kiranyaz et al. (2011) for static environments. Compare the results for an artificial example to another method. Explain the principle of extending the algorithm for dynamic environments.

References

Kiranyaz, S., Pulkkinen, J., and Gabbouj, M. (2011). Multi-dimensional particle swarm optimization in dynamic environments. *Expert Systems with Applications*, 38:2212–2223.