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ENHANCED HYBRID LEVY PARTICLE SWARM VARIABLE NEIGHBORHOOD SEARCH OPTIMIZATION(EHL_PS_VNSO)

Developed by:

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Research Contribution

- **Developed Algorithm: EHL_PS_VNSO**

- **Sequential execution** of two meta-heuristic optimization methods

- **Variable Neighborhood Search (VNS) [1]** Method used for the effective initialization of the population to get the near optimal solution in minimum execution time. The VNS approach extend the local hunt and allow systemic improvements in the neighborhood.

- **Levy Particle Swarm Optimization (Levy PSO)** is the modified version of PSO **[2]** with levy distribution. In which Levy Step **[3]** is a random walk, the length of which is derived from the Levy distribution. The most species (e.g. swordfish and Silky sharks) and insects use Levy Flights to hunt for food. Levy PSO used for efficiently exploit and explore the search space to obtain the global solution in minimum execution time.

- Overall this hybridization of **VNS** and **Levy PSO** has a property, which effectively provides the global exploration and local exploitation of the search space to find the **better sub-optimal solutions** in minimum execution time with less iterations.

- EHL_PS_VNSO algorithm is the enhance version of the HL_PS_VNSO [4] algorithm, which is participated in IEEE CEC/GECCO 2019 Competition on "Evolutionary Computation in Uncertain Environments: A Smart Grid Application".

References

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