Swarm Intelligence — Implementation Exercise **3**
Particle Swarm Optimization

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1. Implement a PSO algorithm to solve continuous optimization problems. You can use the template in C++ provided in the files of the course. *Note: Two functions to optimize are already provided in the template.*

2. Test your implementation on the Rastrigin function with 10 dimensions using the Gbest topology with 5, 10, 20, 50 particles. Use $\psi_1 = \psi_2 = 1.0$ coefficients. Termination condition is 50 iterations. Repeat for 20 runs and compare the results using the statistical tools you used for ACO.

3. Repeat with the same settings, but using star and ring topology. How do the results differ?

4. Use now 20 particles in a star topology to evaluate the Rosenbrock function, on a budget of 50 iterations. Tune inertia, ψ_1 and ψ_2 coefficients to find the values that give the best results.