# PSO Homework

- Develop a particle swarm optimization algorithm for the test case assigned to you
- Write a program to test the algorithm: start with a swarm of random solutions
- Upload your report (in one WORD file) to the Moodle system before **11:00pm on April 16 (Tuesday).** Grade will be deducted 50% per day for late homework.

Your report should include the following parts

1. The problem
2. Indicate the swarm size and termination condition
3. Selection of tuning parameters: inertia weight, acceleration constants, velocity maximum
4. You may choose classical PSO or add new features to it, e.g., craziness. Explain your new features, if there is any.
5. Explain how your algorithm handles the constraint.
6. Final optimal solution (x and y) and convergence history
   - keep the best objective value up to the current iteration as the record; report the record at different iterations
7. Comparison with GA
   - Compare the convergence histories of PSO and GA; draw your conclusion
   - Compare the final optimal solutions of PSO and GA. The comparison should be made statistically based on multiple runs;
   - Bonus: Draw a conclusion on whether one algorithm is significantly superior to the other.
8. Program codes with clear explanations