SCOA

Abhishek Mankuskar
F17112015
BE Comp-2

Q.1) Enlist the basic steps of practicle Sworm optimization.

Ans: i) The PSO algorithm maintains multiple potential solution at onetime.
ii) During each iteration of the algorithm each solution is ~~Equivalent~~ evaluated by an Objective function to determine fitness.
iii) Each solution is represented by a practicd in the fitness landscape.
iv) The practicles "fly" or "sworm" through the search space to find the maximum value returned by the objective functions.

Steps of PSO algorithm :-
1) Evaluate Fitness of each particle
2) Update individual & global best
3) Update velocity & position of each particle.

These steps are repeated until some stopping condition is met.
Each Particle's velocity is updated using this equation.

$$v_i(t+1) = wv_i(t) + c_1 r_1 [\hat{x}_i(t) - x_i(t)] + c_2 r_2 [g(t) - x_i(t)]$$

Q.2 Differentiate in between Real valued & binary PSO

Ans :

1) In regular (real valued) PSO, everything is in terms of velocity. Generally the velocity is defined in terms of probability of bit changing.
2) In binary PSO each solution in the population is a binary string. Each binary strings is of dimension n which is evaluated to given parameter values.
3) In Binary PSO each Binary string represent a particle strings are updated bit-by-bit based on its current values, the value of that bit in the best of that particle to date & the best value of that bit to date of neighbors.
4) In BPSO bit-by-bit updates are done probabilistically.