ECE 580 Spring 2018

FunWork #4

Due on March 28

INSTRUCTIONS: The assignment must be typed. Clearly identify the steps you have taken to solve each problem. Whenever you use somebody else's code from the Internet, make sure to give reference/credit to the code source. If you do not reference the source and the grader will find the source, you will be charged with plagiarism, which is a serious offense.

Your grade depends on the completeness and clarity of your work as well as the resulting answer.

Submissions via e-mail will not be accepted!

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1. Exercise 12.10 from the textbook on pages 246–247.

2. Exercise 12.16 from the textbook on page 248.

3. Exercise 12.19 from the textbook on page 249.

4 Consider the d-dimensional Griewank function given by the following MATLAB code,

```
% xx = [x1, x2, ..., xd]
d = length(xx);
sum = 0;
prod = 1;
for ii = 1:d
xi = xx(ii);
sum = sum + xi^2/4000;
prod = prod * cos(xi/sqrt(ii));
end
y = sum - prod + 1;
end
```

Minimize the 2D Griewank function over the search area

$$\left[\ -5, \ \ 5 \ \right] \times \left[\ -5, \ \ 5 \ \right]$$

using the PSO algorithm and produce plots of the best, average, and the worst objective function values in the population for every generation.

5. Maximize the 2D Griewank function over the search area

$$\left[\ -5, \ \ 5 \ \right] \times \left[\ -5, \ \ 5 \ \right]$$

using the PSO algorithm and produce plots of the best, average, and the worst objective function values in the population for every generation.