

ECE592-084: Optimizations and Algorithms
Fall 2019

Prof. Shih-Chun Lin

Homework 4

Due: 11:59pm, Thursday, December 5, 2019

Clearly identify the steps you have taken to solve each problem. Your grade depends on the completeness and clarity of your work as well as the resulting answer.

1. Minimize the function

$$f(x_1, x_2) = (x_2 - x_1)^4 + 12x_1x_2 - x_1 + x_2 - 3,$$

using

- the PSO algorithm,
- the canonical genetic algorithm, and

Produce plots of the best, average, and the worst objective function values in the population for every generation.

2. Exercise 15.11 from the textbook on page 337 (page 331 in the third edition).
3. Solve the **dual problem** of Example 15.5, on pages 311–312 of the textbook (pages 305–306 in the third edition).