

INF3490/INF4490 Exercises - Week 3

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ℙ marks the programming exercises, we strongly recommend using the python programming language for these. Exercises may be added/changed after publishing.

1 Pareto Optimality

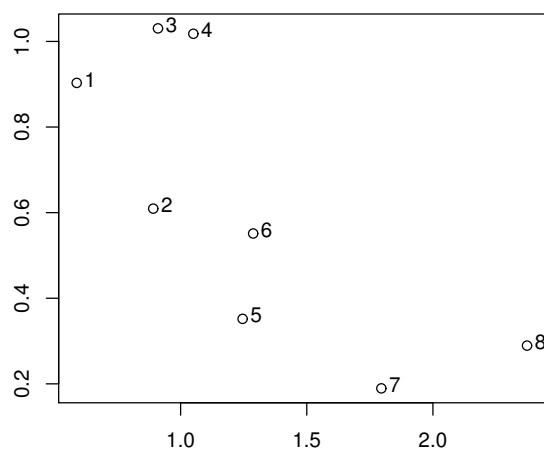


Figure 1: a

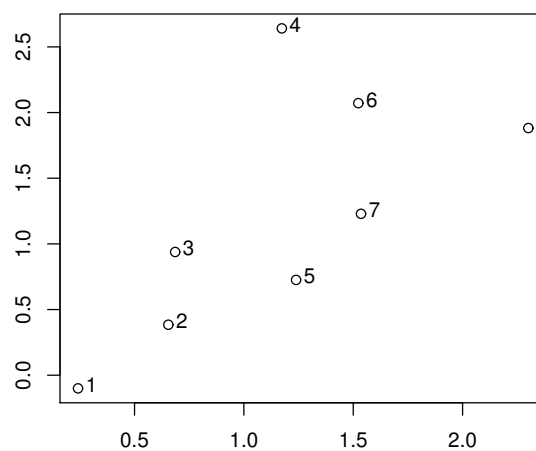


Figure 2: b

For figure a and b above, find the Pareto optimal set when

- Minimizing both f_1 and f_2
- Minimizing f_1 , maximizing f_2
- Maximizing f_1 , minimizing f_2
- Maximizing both f_1 and f_2

2 Weighted sum

In figures a and b, what would be the maximum point when using weighted sum:

- $w_1 = 1, w_2 = 1$
- $w_1 = -1, w_2 = 1$

3 Hybrid Algorithm

Why can hybrid algorithms make it harder to maintain diversity?

4 Measuring algorithm performance

Why is it usually better to use the number of fitness function evaluations as a time measure, rather than the number of generations, or the amount of CPU time spent?

Contact and Github

Corrections of grammar, language, notation or suggestions for improving this material are appreciated. E-mail me at olehelg@uio.no or use **GitHub** to submit an issue or create a pull request. The **GitHub repository** contains all source code for assignments, exercises, solutions, examples etc. As many people have been involved with writing and updating the course material, they are not all listed as authors here. For a more complete list of authors and contributors see the **README**.