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# Sampling

Still, the 23 functions are divided into 3 groups. First group contains 12 functions, which are F1, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, and F13. The second group consists of 7 functions, namely F2, F14, F16, F17, F18, F19, and F20. The last group consists of 4 functions, i.e., F15, F21, F22, and F23.

Baldwin and Lamarck need to compute f.() twice during each iteration, but SSGA only needs to compute f.() once. So, for a given budget, say budget=10000, this means that SSGA can perform 10,000 iterations, but Baldwin and Lamarck can only perform 5000 iterations. SSGA takes the best solution every 50 iterations, but Baldwin and Lamarck take the best solution every 25 iterations.1 In this case, the final number of data points sampled is the same. We gave all 20 parameter combinations 20 runs.

# First Group

Data for F4 , F8, F9, and F10 is still under running, but the others are completed.

Figure 1 shows the Budget-Best solution curve for F1, F3, F5, F6, F7, F11, F12 and F13 in first group.

Figure 2 shows the Iter-Best solution curve for F1, F3, F5, F6, F7, F11, F12 and F13 in first group.

Figure Budget convergence for part of functions of first groupGraphical user interface, diagram

Description automatically generated

Figure Iterations convergence for part of functions of first group

Graphical user interface, diagram

Description automatically generated

# Second group

Figure 3 shows Budget-Best solution curve for the second group.

Figure 4 shows Iter-Best solution curve for the second group.

Figure 5 shows the first 100 budget for the second group.

Figure Budget convergence for second group

Graphical user interface, application, table, Excel

Description automatically generated

Figure Iterations convergence for second group

Graphical user interface

Description automatically generated

Figure first 100 budget for second group

Timeline

Description automatically generated

# Third group

Figure 6 shows Budget-Best solution curve for the third group.

Figure Budget convergence for the third group

Graphical user interface

Description automatically generated

Figure 7 shows Iter-Best solution curve for the third group.

Figure Iterations convergence for the third group

Graphical user interface, chart

Description automatically generated