

# Offline Data-Driven Multiobjective Optimization: Knowledge Transfer Between Surrogates and Generation of Final Solutions

This paper proposes algorithm called MS-RV for offline data-driven optimization. In offline data-driven optimization only historical data is available, which means that found solutions cannot be verified using the real objective functions. The solution proposed by this paper introduces method where two surrogate models work together where more coarse surrogate (CS) model guides more fine-grained surrogate (FS) in order to quickly find promising areas where finer surrogate can then exploit promising solutions.

Knowledge transfer occurs between CS and FS, which improves the convergence of optimization process since both surrogates have been trained from the same historical data. After the optimization process, reference vector-based algorithm is used to select the final solution from promising solutions that have been stored during the optimization process.

MS-RV algorithm performed very well when testing it by using test problems. However when it was applied to real world optimization problem, MS-RV was not able to identify the pareto front for difficult optimization problem. One reason for this might be the ill distribution of offline data for these problems.