

Due to the OpenReview max file size limitation, we upload a representative subset of the dataset. All the dataset is provided in [MIPLP_Gap_Mitigation_for_Predict+Optimize](#).

To run LCGT-Stage1 and Combination methods, please first unzip `wo_heuristic_cutLim.zip` and move the executable file into the corresponding “LCGT-Stage1” or “Combination” file. The original C program of the executable file is also provided.

To run the weighted set multi-cover problem: enter the “WSMC” folder

1. To Run MipOpt-Both:
 - a. Enter the “MipOpt-Both” folder
 - b. Run “`python3 MipOpt_train.py 1 3 [Penalty factor] [Startmark] [Endmark]`”
For example, to run experiments on penalty factor = 0.25 and the first simulation: `python3 MipOpt_train.py 1 3 0.25 0 1`
2. To Run LCGT-Stage1:
 - a. Enter the “LCGT-Stage1” folder
 - b. Run “`python3 LCGT_train.py 2 1 [Cut generation time limitation] [The number of cut limitation] [Penalty factor] [Startmark] [Endmark]`”
For example, to run experiments on cut generation time less than or equal to 0.5 seconds, penalty factor = 0.25 and the first simulation: `python3 LCGT_train.py 2 1 0.5 0 0.25 0 1`
3. To Run Combination:
 - a. Enter the “Combination” folder
 - b. Run “`python3 Combination_train.py [Penalty factor] [Startmark] [Endmark]`”
For example, to run experiments on penalty factor = 0.25 and the first simulation: `python3 Combination_train.py 0.25 0 1`

To run the 0-1 knapsack problem: enter the “01KS” folder

1. To Run MipOpt-Both:
 - a. Enter the “MipOpt-Both” folder
 - b. Run “`python3 MipOpt_train.py [Capacity] [Penalty factor] [Startmark] [Endmark]`”
For example, to run experiments on capacity = 100, penalty factor = 0.25, and the first simulation: `python3 MipOpt_train.py 100 0.25 0 1`
2. To Run LCGT-Stage1:
 - a. Enter the “LCGT-Stage1” folder
 - b. Run “`python3 LCGT_train.py [Capacity] [Penalty factor] [Startmark] [Endmark]`” (Default setting is Cut generation time limitation = 0.5s)
For example, to run experiments on cut generation time less than or equal to 0.5 seconds, penalty factor = 0.25 and the first simulation: `python3 LCGT_train.py 100 0.25 0 1`
3. To Run Combination:
 - a. Enter the “Combination” folder
 - b. Run “`python3 Combination_train.py [Capacity] [Penalty factor] [Startmark] [Endmark]`” (Default setting is Cut generation time limitation = 0.5s)
For example, to run experiments on penalty factor = 0.25 and the first simulation: `python3 Combination_train.py 100 0.25 0 1`

To run the nurse rostering problem: enter the “NRP” folder

1. To Run MipOpt-Both:
 - a. Enter the “MipOpt-Both” folder
 - b. Run “*python3 MipOpt_train.py [Extra payment] [Startmark] [Endmark]*”
For example, to run experiments on extra payment = 15, and the first simulation: *python3 MipOpt_train.py 15 0 1*
2. To Run LCGT-Stage1:
 - a. Enter the “LCGT-Stage1” folder
 - b. Run “*python3 LCGT_train.py [Extra payment] [Startmark] [Endmark] [Cut generation time limitation] [The number of cut limitation]*”
For example, to run experiments on cut generation time less than or equal to 0.5 seconds, extra payment = 15, and the first simulation: *python3 LCGT_train.py 15 0 1 0.5 0*
3. To Run Combination:
 - a. Enter the “Combination” folder
 - b. Run “*python3 Combination_train.py [Extra payment] [Startmark] [Endmark] [Cut generation time limitation] [The number of cut limitation]*”
For example, to run experiments on cut generation time less than or equal to 0.5 seconds, extra payment = 15, and the first simulation: *python3 Combination_train.py 15 0 1 0.5 0*