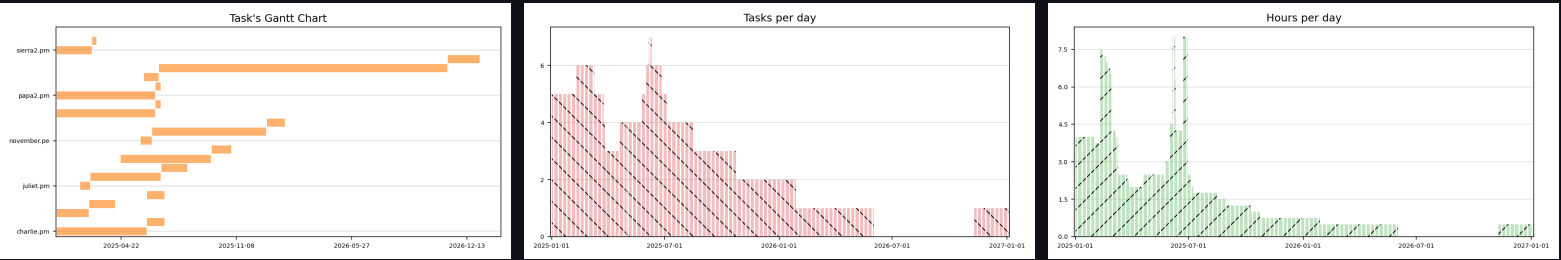# Yumbo. Scheduling, Planning and Resource Allocation

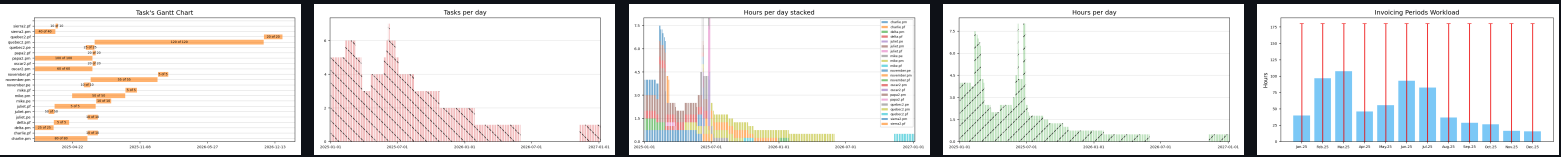## Zbigniew Romanowski, Paweł Koczyk

Source code, documentation and sample Excel input files can be found on Yumbo's GitHub repository.

23 January 2025, 16:59:13 PM

Experts overview

PM.Angel the 1st unit

Solver output at 23 January 2025, 16:59:15 PM

```
HiGHS 1.8.1:   tech:outlev = 1
Running HiGHS 1.8.1 (git hash: 4a7f24a): Copyright (c) 2024 HiGHS under MIT licence terms
Coefficient ranges:
  Matrix [1e+00, 3e+01]
  Cost   [1e+00, 1e+00]
  Bound  [1e+00, 2e+02]
  RHS    [2e+01, 5e+02]
Presolving model
1132 rows, 1899 cols, 3694 nonzeros  0s
790 rows, 1728 cols, 3010 nonzeros  0s
790 rows, 1725 cols, 3007 nonzeros  0s

Solving MIP model with:
   790 rows
   1725 cols (650 binary, 1075 integer, 0 implied int., 0 continuous)
   3007 nonzeros
MIP-Timing:      0.011 - starting analytic centre calculation

Src: B => Branching; C => Central rounding; F => Feasibility pump; H => Heuristic; L => Sub-MIP;
     P => Empty MIP; R => Randomized rounding; S => Solve LP; T => Evaluate node; U => Unbounded;
     z => Trivial zero; l => Trivial lower; u => Trivial upper; p => Trivial point

        Nodes      |    B&B Tree     |           Objective Bounds        |  Dynamic Constraints |       Work
Src  Proc. InQueue |  Leaves   Expl. |  BestBound       BestSol      Gap |   Cuts   InLp Confl. |  LpIters     Time

       0       0      0   0.00%   5811.530431    inf            inf        0      0      0        0      0.0s
 R     0       0      0 100.00%   10450.904741   10450.904741   0.00%      0      0      0      295      0.0s
       1       0      1 100.00%   10450.904741   10450.904741   0.00%      0      0      0      295      0.0s

Solving report
  Status            Optimal
  Primal bound      10450.9047405
  Dual bound        10450.9047405
  Gap               0% (tolerance: 0.01%)
  P-D integral      0
  Solution status   feasible
                    10450.9047405 (objective)
                    0 (bound viol.)
                    0 (int. viol.)
                    0 (row viol.)
  Timing            0.02 (total)
                    0.00 (presolve)
                    0.00 (solve)
                    0.00 (postsolve)
  Max sub-MIP depth 0
  Nodes             1
  Repair LPs        0 (0 feasible; 0 iterations)
  LP iterations     295 (total)
                    0 (strong br.)
                    0 (separation)
                    0 (heuristics)
HiGHS 1.8.1: optimal solution; objective 10450.90474
295 simplex iterations
1 branching nodes
```

Elapsed time for chart creation

Chart title	Chart short name	Number of calls	Elapsed time [s]
Hours per day stacked	simg	1	8.371
Hours per day	himg	1	1.058
Tasks per day	timg	1	0.625
Task's Gantt Chart	gimg	1	0.178
Invoicing Periods Workload	wimg	1	0.105
Plot task with its constrains	bimg	0	0.000