

Healthcare Workforce Scheduling

Personnel scheduling aims to create periodic schedules of demands to limited workforce with minimized cost savings and maximized service quality, satisfying different constraints including legislation, skill levels and preferences, etc.

COL Lab focus on building models and intelligent algorithms to real-life workforce scheduling problems in business and organisations including healthcare and retail.

In collaboration with ORTEC®, a consultancy company at The Netherlands, we developed intelligent algorithms to automatically create cost effective rosters concerning a range of regulations and constraints in healthcare around the world.

Problem features include:

- Location based shifts
- Employees work together / separately
- Rules defined by arithmetic, functions / variables

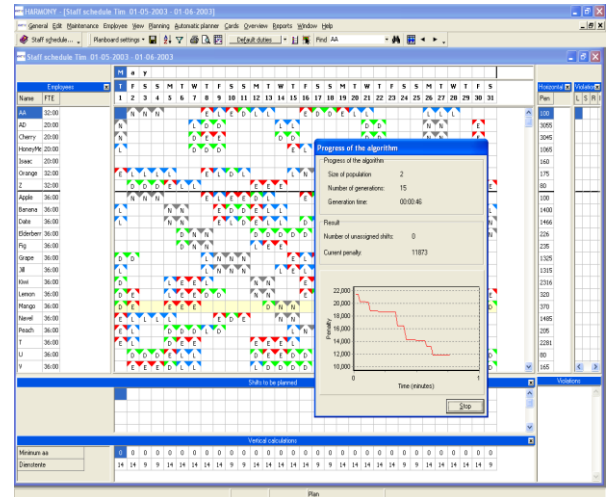


Figure 1. An example workforce roster

Staff Roster Solutions®

Staff Roster Solutions is a spin-out company formed by the COL Lab to commercially license and develop staff scheduling technologies to customers in Europe and North America. The technologies are used daily to schedule employees in the healthcare and retail sectors.

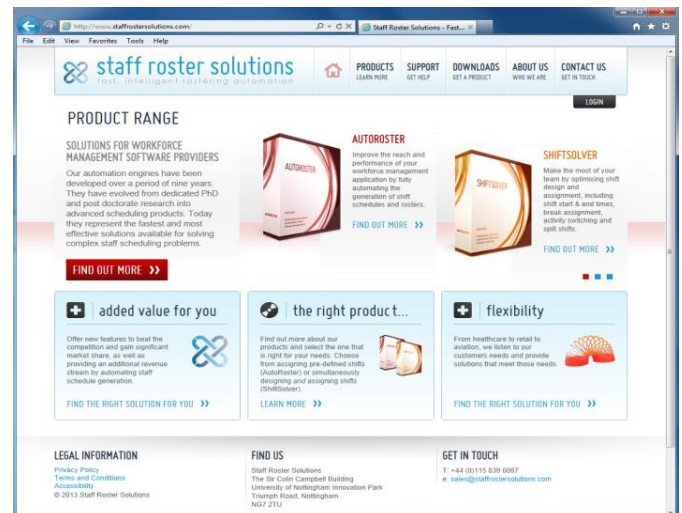
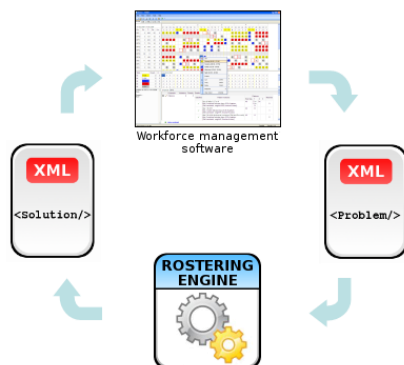


Figure 2. An example workforce roster

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- F. He and R. Qu. A Constraint Programming based Column Generation Approach to Nurse Rostering Problems. *Computers & Operations Research*, 39(12): 3331-3343, 2012