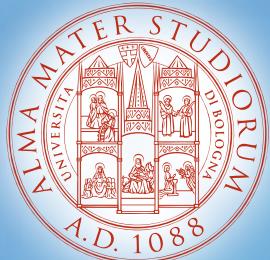


# CPAIOR 2010

7<sup>th</sup> International Conference  
on the Integration of Artificial Intelligence  
and Operations Research techniques  
in Constraint Programming

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Via Guelfa, 9  
40138 Bologna  
Tel. 051-300100  
Fax 051-309477  
e-mail: v.grotti@planning.it  
[www.planning.it](http://www.planning.it)

$$\begin{aligned} & \text{Min } c^T x \\ & Ax \geq b \\ & x \geq 0 \end{aligned}$$

$\bar{x}$  optimal solution

$I := \{j : \bar{x}_j = 0\} \quad J := \{j : \bar{x}_j \neq 0\}$

$\max \Pi = \sum_{i=1}^m u_i b_i + u_{m+1} b_{m+1}$

$\Pi \geq u^* \cdot b$  ( $u^*$  solution of the previous dual)

$+ \alpha_j \cdot u_{m+1} \leq c_j \quad u_j \in I$

$+ \gamma_k \cdot u_{m+1} \leq c_k \quad u_k \in J$

$b_{m+1} = 0$   $a^T x^* < b_{m+1}$  violation

$\vdash \alpha_j \geq 0 \rightarrow$

Bologna, 14-18 June 2010