

Nonnegative weights

$$\min \sum_{p \in P} (w_{\theta} \Theta_p + w_U U_p)$$

subject to :

Set of primary points

$$\sum_{j \in J} \alpha_{jp} X_j - \Theta_p + U_p = 1, \quad \forall p \in P$$

Coverage Constraint

Overcoverage variable of the primary point  $p$

$$\Theta_p \in \mathbb{N},$$

Indicator function of whether the primary point  $p$  is covered by sensor  $j$

$$U_p \in \{0, 1\},$$

Undercoverage variable of the primary point  $p$

$$X_j \in \{0, 1\},$$

Determine the activation of sensor  $j$  during sensing round

Set of sensors

$$\forall p \in P$$

$$\forall p \in P$$

$$\forall p \in P$$

$$\forall j \in J$$