1 Optimization Equation

The states included in the optimization problem:

$$\boldsymbol{x} = \begin{bmatrix} p_n \\ p_e \\ p_d \\ u \\ v \\ w \\ \phi \\ \theta \\ \psi \\ p \\ q \\ r \end{bmatrix}. \tag{1}$$

1.1 Problem definition

$$\begin{aligned} \min_{\boldsymbol{x}} \quad & \Phi = (\boldsymbol{p}_d - \boldsymbol{p}) \\ \text{s.t} \quad & Ax \leq b \\ & \sum_{i=0}^{n} x_i = 1 \\ & x_j \geq 0 \qquad \forall j \in N \end{aligned} \tag{2}$$