Convex Optimization Problem

If we assume $F_{net} = \beta * d$ we can choose a general proportion of net forces d, $\mathbb{R}^{3x1}$, and maximize its magnitude, β .

$$\begin{aligned} \underset{x}{\text{maximize}} \quad & \beta \\ \text{subject to} \quad & F_{net} = A * x \\ & 0 \leq x \leq x_{max} \end{aligned}$$

Our adhesion limitations, and any structural limitation we would put on the compressive forces are contained in x_{max}. To clarify:

$$x = \begin{bmatrix} ||\vec{T}_1|| \\ ||\vec{T}_2|| \\ ||\vec{C}_1|| \\ ||\vec{C}_2|| \end{bmatrix} \quad x_{max} = \begin{bmatrix} adhesive1_{max} \\ adhesive2_{max} \\ contact1_{max} \\ contact2_{max} \end{bmatrix} \quad F_{net} = \begin{bmatrix} \Sigma F_x \\ \Sigma F_y \\ \Sigma M_z \end{bmatrix}$$