$$\min_{u \in \mathbb{R}^6} \quad u^T \Biggl(\sum_i \begin{bmatrix} \mathbf{x}_i \times \hat{\mathbf{n}}_i \\ \hat{\mathbf{n}}_i \end{bmatrix} \left[(\mathbf{x}_i \times \hat{\mathbf{n}}_i)^T \quad \hat{\mathbf{n}}_i^T \right] \Biggr) u - 2u^T \Biggl(\sum_i \begin{bmatrix} \mathbf{x}_i \times \hat{\mathbf{n}}_i \\ \hat{\mathbf{n}}_i \end{bmatrix} \hat{\mathbf{n}}_i^T (p_i - \mathbf{x}_i) \Biggr) + \sum_i (p_i - \mathbf{x}_i)^T \hat{\mathbf{n}}_i \hat{\mathbf{n}}_i^T (p_i - \mathbf{x}_i) \Biggr) + \sum_i (p_i - \mathbf{x}_i)^T \hat{\mathbf{n}}_i \hat{\mathbf{n}}_i^T (p_i - \mathbf{x}_i) \Biggr) + \sum_i (p_i - \mathbf{x}_i)^T \hat{\mathbf{n}}_i \hat{\mathbf{n}}_i^T (p_i - \mathbf{x}_i) \Biggr)$$

where

 $x_i \in \mathbb{R}^3$

 $\hat{n}_i \in \mathbb{R}^3$ $p_i \in \mathbb{R}^3$