$\mu^{(k+1)} \leftarrow \sum_{i=1}^{N} \hat{f}(\mathbf{z}_i) \mathbf{z}_i$ 

 $\boldsymbol{s}^{(k+1)} \leftarrow \boldsymbol{s}^{(k)} + \frac{1}{2} \left( R^{(k)} + Q^{(k)} \frac{\overrightarrow{\partial^2 \mathcal{J}}}{\overrightarrow{\partial \sigma \partial \sigma^T}} Q^{(k)^\top} \right)^{-1} Q^{(k)} \cdot \operatorname{vec} \left( \sum_{i=1}^{N} \hat{f}(\mathbf{z}_i) \left( \mathbf{z}_i - \boldsymbol{\mu}^{(k)} \right) \left( \mathbf{z}_i - \boldsymbol{\mu}^{(k)} \right)^\top - \sum_{i=1}^{(k)} \sum_{j=1}^{N} \hat{f}(\mathbf{z}_j) \left( \mathbf{z}_j - \boldsymbol{\mu}^{(k)} \right) \left( \mathbf{z}_j - \boldsymbol{\mu}^{(k)} \right)^\top - \sum_{i=1}^{N} \hat{f}(\mathbf{z}_i) \left( \mathbf{z}_i - \boldsymbol{\mu}^{(k)} \right) \left( \mathbf{z}_i - \boldsymbol{\mu}^{(k)} \right) \right) \mathcal{L}^{(k)}$