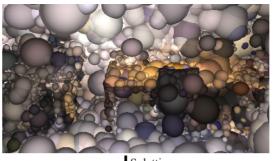
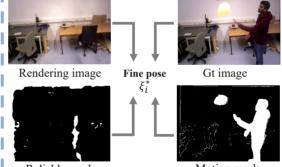


## 3D Gaussian map

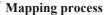


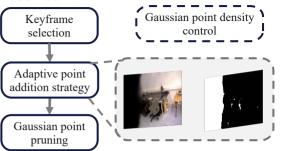


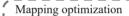
## **Tracking optimization (Fine stage)**



Reliable mask Motion mask 
$$\xi_{i}^{*} = \arg\min_{\xi_{i}} \lambda_{1} \frac{1}{M} \sum_{i=1}^{M} \left\| (\hat{C}(\mathcal{G}, \xi_{i}) - C) \cdot \widehat{M}_{i} \cdot \widehat{O}_{i} \right\|_{2}^{2} + \lambda_{2} \frac{1}{N_{d}} \sum_{p \in N} \left\| (\widehat{D}(\mathcal{G}, \xi_{i}) - D) \cdot \widehat{M}_{i} \cdot \widehat{O}_{i} \right\|_{2}^{2}$$









$$\begin{split} \mathcal{L}_{rgb} &= \frac{1}{M} \sum_{i=1}^{M} \left\| (\hat{C} - C) \cdot \widehat{M}_i \right\|_2^2 \\ \mathcal{L}_{depth} &= \frac{1}{N_d} \sum_{\mathbf{p} \in N_d} \left\| (\widehat{D} - D) \cdot \widehat{M}_i \right\|_2^2 \\ \mathcal{L}_{mapping} &= \lambda_1 \mathcal{L}_{rgb} + \lambda_2 \mathcal{L}_{ssim} + \lambda_3 \mathcal{L}_{depth} \end{split}$$