

图像信息



GNSS全局信息



建图预处理

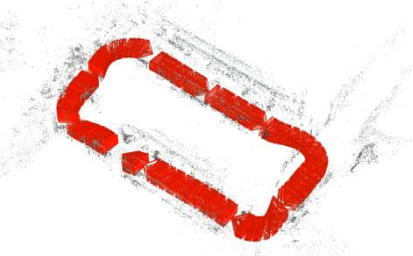
语义分割



关键帧筛选



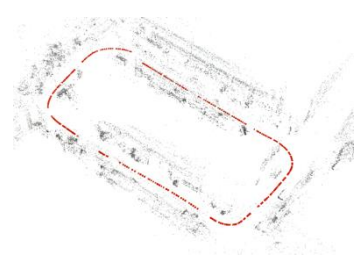
SfM



$$E_i = \sum_j \rho(\|\hat{x}_j - \pi(T_w^{k_i}, p_m^w)\|_2^2)$$

$$\pi(T_w^{k_i}, p_m^w) = [K \cdot (R_w^{k_i} \cdot p_m^w + t_w^{k_i}) / d_j]_{0:2}$$

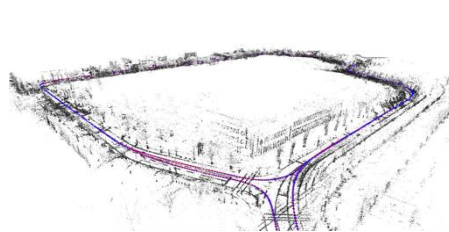
建图对齐



$$l_{k_i}^g = s \cdot R_w^g \cdot t_{k_i}^w + t_w^g$$

$$s^*, R_w^{g*}, t_w^{g*} = \arg \min_{s, R_w^g, t_w^g} \sum_i^{N_I} \|l_{k_i}^g - s \cdot R_w^g \cdot t_{k_i}^w - t_w^g\|_2^2$$

建图融合



$$E_i = \sum_j \rho(\|x_j - \pi(T_g^{k_i}, p_m^g)\|_2^2) + \alpha \cdot \rho(\| -R_g^{k_i^T} \cdot t_g^{k_i} - l_{k_i}^g \|_2^2)$$