(a) Interleave Ray Refinement (IRR) Stage (Sec. 3.3)

Dynamic NeRF Rendering

$\gamma(\mathbf{x}, \mathbf{d})$ → F_{θ^s} → b, c^s, σ^s → Σ → $\hat{C}^s$ ← M → $\mathcal{B}$ (Eq. 11)

Static Net

$l(t)$ → F_{θ^d} → c^d, σ^d → Σ → $\hat{C}^d$ ← $\mathcal{B}$ (Eq. 10)

Dynamic Net

Σ → $\hat{C}^{full}$ ← $\mathcal{B}$ (Eq. 10)

(Eq. 3)

$\tilde{\boldsymbol{r}}_{\boldsymbol{p};t}$ → $\hat{\boldsymbol{r}}_{\boldsymbol{p};t}$

Ray Refinement

Interleave Optim. (Sec 3.3.2 & Algo. 1)

Learn. Embed.

t → $\mathcal{S}_t$

Screw Axis

Ray Warp. $\mathcal{W}$ (Eq. 8)

$\tilde{\boldsymbol{r}}_{\boldsymbol{p};t}$

$\hat{\boldsymbol{r}}_{\boldsymbol{p};t}$
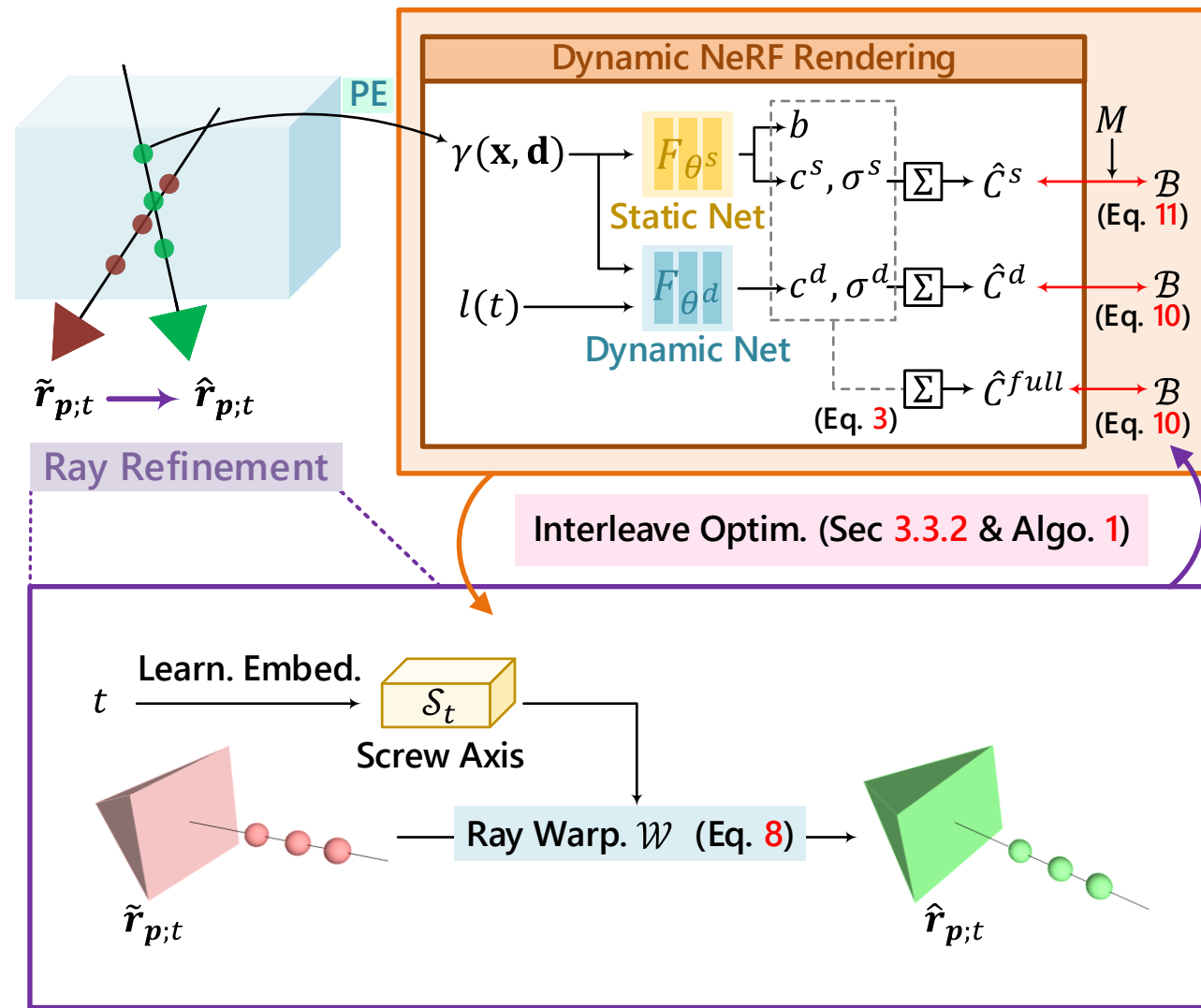
(b) Motion Decomposition-based Deblurring (MDD) Stage (Sec. 3.4)

Dynamic NeRF Rendering

Dynamic NeRF Rendering

Dynamic NeRF Rendering

Avg. $\mathcal{A}$ (Eq. 7)

M → $\hat{C}^s_{\mathcal{B}}$ ← $\mathcal{B}$ (Eq. 11)

$\hat{C}^d_{\mathcal{B}}$ ← $\mathcal{B}$ (Eq. 10)

$\hat{C}^{full}_{\mathcal{B}}$ ← $\mathcal{B}$ (Eq. 10)

$\dot{\boldsymbol{r}}_{\boldsymbol{p};t;1}$ ↔ $\hat{\boldsymbol{r}}_{\boldsymbol{p};t}$ → $\dot{\boldsymbol{r}}_{\boldsymbol{p};t;2}$

Incremental Latent Sharp-rays Pred. (ILSP) (for q-th latent sharp ray)

Learn. Embed.

t → $\mathcal{S}^g_{t;q}$

$l(t)$ → ⓒ → F_{θ^l} → $\mathcal{S}^l_{\boldsymbol{p};t;q}$

ϕ

$\mathcal{W}$

$\hat{\boldsymbol{r}}_{\boldsymbol{p};t}$

$\dot{\boldsymbol{r}}^g_{\boldsymbol{p};t;q}$

$\mathcal{W}$

$\dot{\boldsymbol{r}}^l_{\boldsymbol{p};t;q}$

GCRP (Eq. 14) for all region

LORR (Eq. 15) for dynamic region only
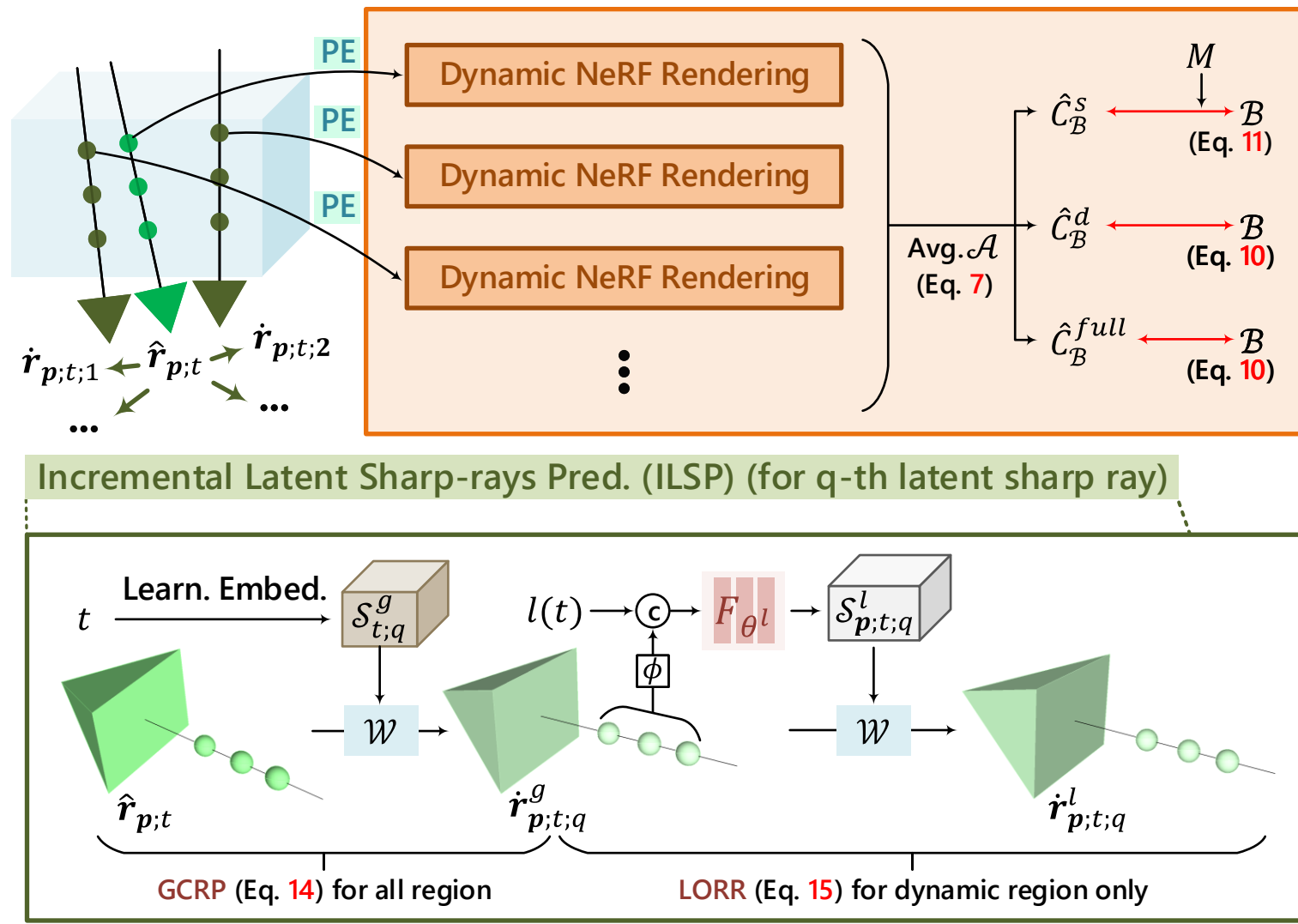
γ : Positional Encoding

M : Binary Motion Mask (Eq. 6)

l : Generative Latent Optimization

$\mathcal{B}$: Blurry GT color

b : Vol. Density Blending Factor

Σ : Vol. Rendering

ⓒ : Channel-wise Concatenation

ϕ : Discretized Ray Embedding