**4DGS**

Gaussian Primitives

$t_0$

PCA& Contraction

$\text{Contract}(\frac{\boldsymbol{P}(\mu - \mu_0)}{\sigma_0})$

space-only  space-time

Multiscale Hexplane

Deformed GS

$t_i$

**MHCM**

**STP**

Multi views

$G_j$

Significance

temporal  time

Significance

spatio  view

$S_j$

$t_0$

$t_0$

**SH Compression**

storage

SH

$E_p$

**Low-Scale Hexplane compression**

Space-time planes

MaskConv

$R^l_{c,anchor}$

$h_a$

$z^l_c$

$h_s$

$E_p$

(X-T)

Space-only planes

MaskConv

$E_p$

$C_{xy}$

(X-Y)

Inter-scale Context

(X)  $Avg$  $Avg$  (Y)

(T)  $\otimes$  (T)

**High-Scale Hexplane Compression**

Higher Scale

$E_p$

**Codec**

Hyperprior

Deep Context

Conv
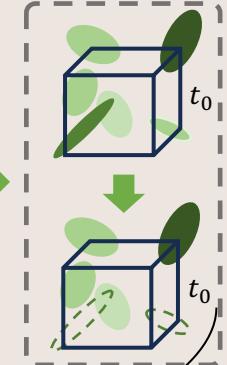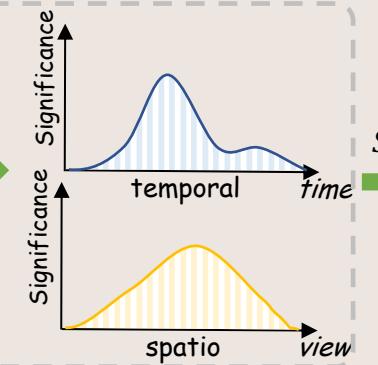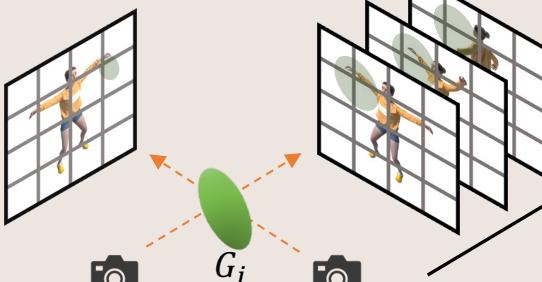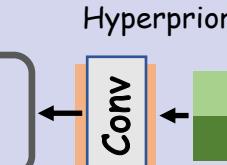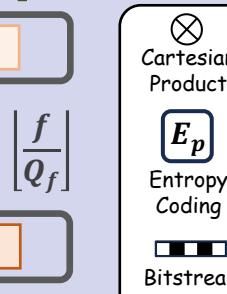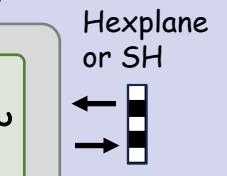
MLP

Distribution estimation

$\mu, \sigma$

$L_{entropy}(f)$  (Training)

(Testing)  Code  c

Hexplane or SH

$\hat{f}$

Adaptive Quantization

$\hat{f} = \left\lfloor \frac{f}{Q_f} \right\rfloor$

$f$

$\otimes$ Cartesian Product

$E_p$ Entropy Coding

Bitstream