?

RNN
red
la-
bel
mapla-
bel
mapRGB
Splat-
ting
tech-
niques

$\mathbf{b} = [\mathbf{q}, \mathbf{t}] \in SE(3)$

$\mathbf{q} \in SO(3)$ $\mathbf{t} \in R^3$

s_c

$$s_c \propto \frac{1}{|\mathcal{P}_c|} \sum_{x \in \mathcal{P}_c} \min_{\mathbf{t} \in \tau} d(x, t)$$

$P_c c \tau$

CNN-
GRU
pose
Net-
work
Ar-
chi-
tec-
ture

$\mathbf{p}_i^c$
$\mathbf{P}_i = \mathbf{p}_i^c + \hat{\mathbf{p}}_i$

Pose
Loss
Segment
Net-
work
Ar-
chi-
tec-
ture
?

?

?? $I_t h_{t-1} h_{t-1} z_t R_t, T_t$
$NN =$
10??

$$L_{depth} = \sum_t^N \sum_{i,j} \left\| \xi_t(i,j) - \hat{\xi}_t(i,j) \right\|_{L1}$$

$i, j t$
$L1-$
$Norm$
R
T

$$L_{rot} = \sum_t \|r_t - \hat{r}_t\|_2 \quad L_{trans} = \sum_t \|t_t - \hat{t}_t\|_2$$

$$L_{grad} = \sum_t \sum_{h \in \{1,2,4,8,16\}} \sum_{i,j} \|g_{h,t}(i,j) - \hat{g}_{i,j}(i,j)\|_2$$

$h g_{h,t}$
ξ_t

$$g_{h,t} = \left(\frac{\xi_t(i+h,j) - \xi_t(i,j)}{|\xi_t(i+h,j) + \xi_t(i,j)|}, \frac{\xi_t(i,j+h) - \xi_t(i,j)}{|\xi_t(i,j+h) + \xi_t(i,j)|} \right)$$

L_{grad}

$$L = \alpha * L_{depth} + \beta * L_{pose} + \gamma * Lgrad$$

α, β, γ
Cau-
tion!
$\xi = \frac{1}{z}$