Work report

20190728

zeyuxiao

What I have done

- Free research on light field
- Some ideas and questions

View synthesis

- Randering/Angular SR
- Hybrid system imaging
- Light field views or videos

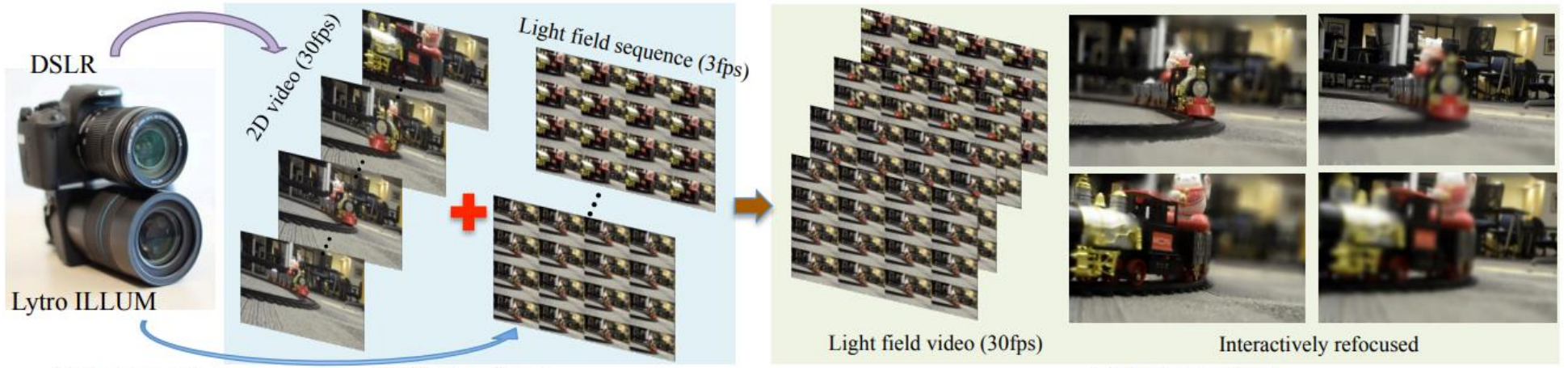
Light field video synthesis（SIGGAPH2017）

2D video frames I^t

light field sequences L^t, where $t = 1, 2, 3...$

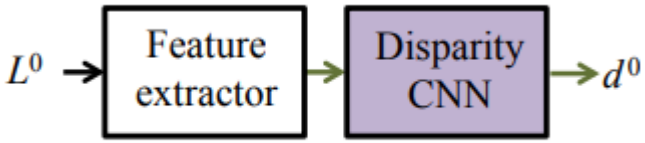
neighboring keyframes L^0 and L^T

given (L^0, L^T) and $\{I^0, I^1, ..., I^{T-1}, I^T\}$, estimate $\{L^1, ..., L^{T-1}\}$.



(a) System setup (b) System input (c) System output

Spatio-temporal flow estimation network

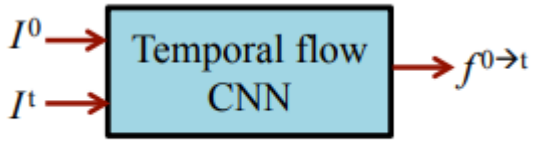


(a) Disparity estimation

Disparity at keyframe

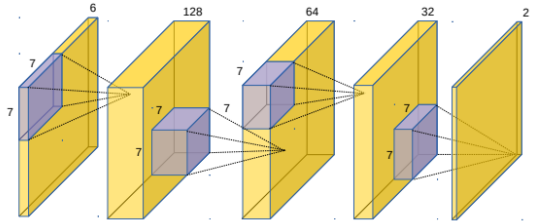
8x8=64 → central view

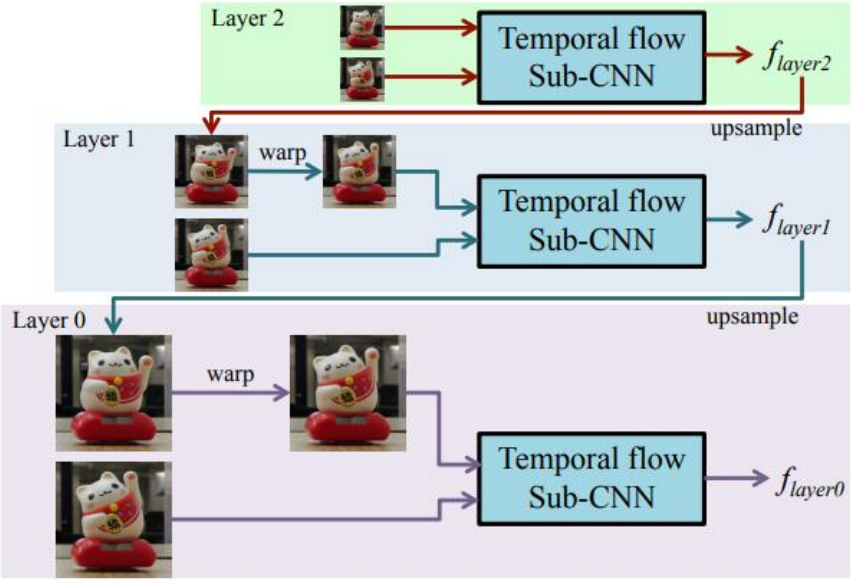
L2 loss : depth wrap to central



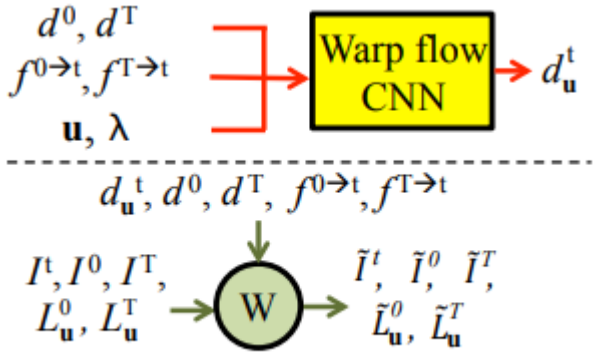
(b) Temporal flow estimation

L2 loss

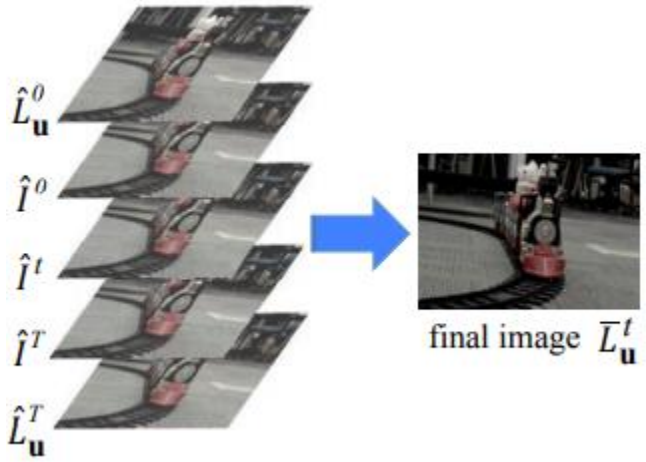




(a) Hierarchical architecture of our temporal flow network.



(c) Warp flow estimation



Appearance estimation network

Improvements

- Flow method ++
- Moderate distance
- Giant motion and terrible lighting environment
- Hybrid system optimization

Thoughts

- Complete the synthesis of views at one time
- Change loss function（consistency loss）
- Better architecture
- 4D-LF structure（Implicit）
- Speed/training strategy