Pyramid Spatial Feature Transform And Shared Offsets Deformable Alignment based Convolutional Network with Feature Selection for HDR Imaging

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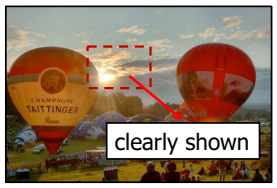
Background

- Low dynamic range (LDR)
  - Bad visual quality
  - Information loss
- High dynamic range (HDR)
  - Good visual quality
  - Close to what human eyes see

LDR image



HDR image

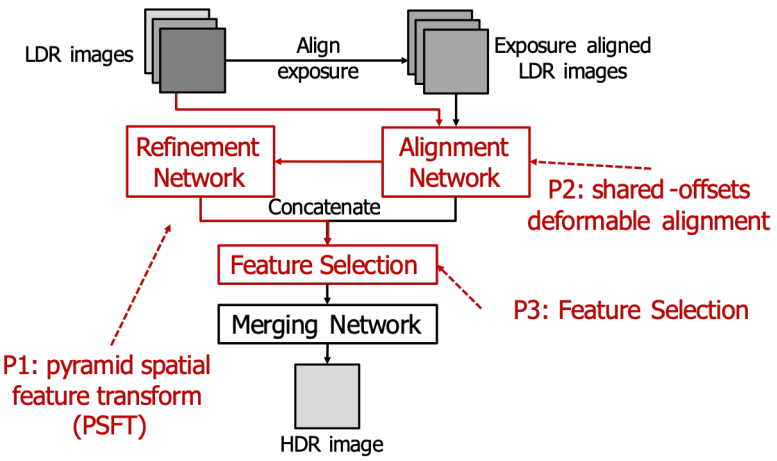
- Challenge – Ghosting Artifacts

Caused by misalignment

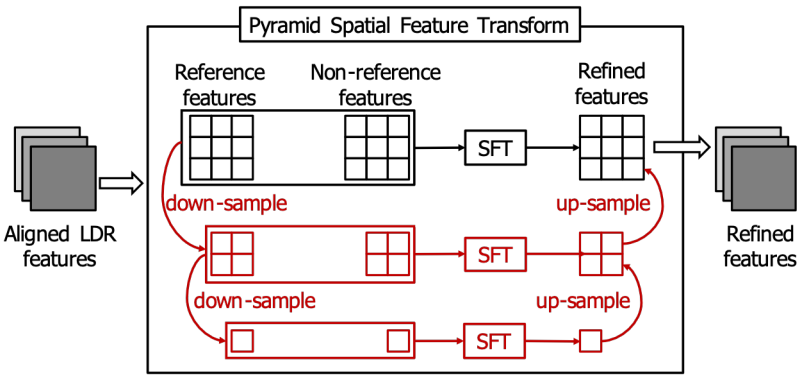
- Target
  - Generate ghost-free HDR image
  - Based on deep learning method

Proposed method

Overall framework

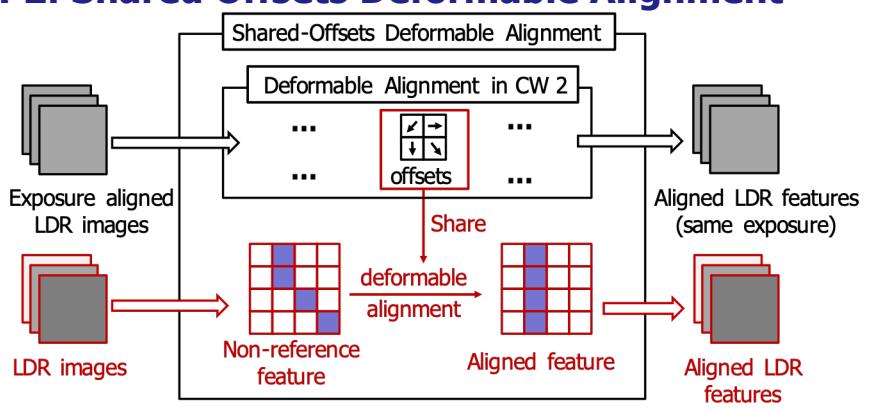


P1: Pyramid Spatial Feature Transform



Coarse-to-fine Multi-scale information → Improve accuracy further

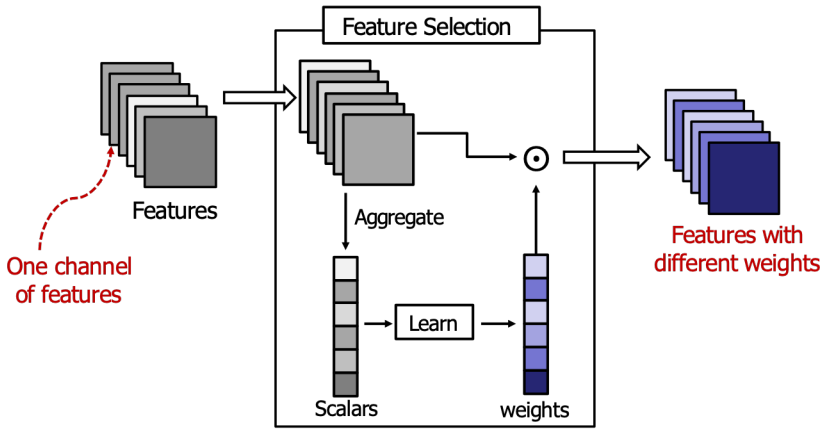
P2: Shared Offsets Deformable Alignment



All features are aligned before merging

No need to learn extra offsets for aligning LDR images

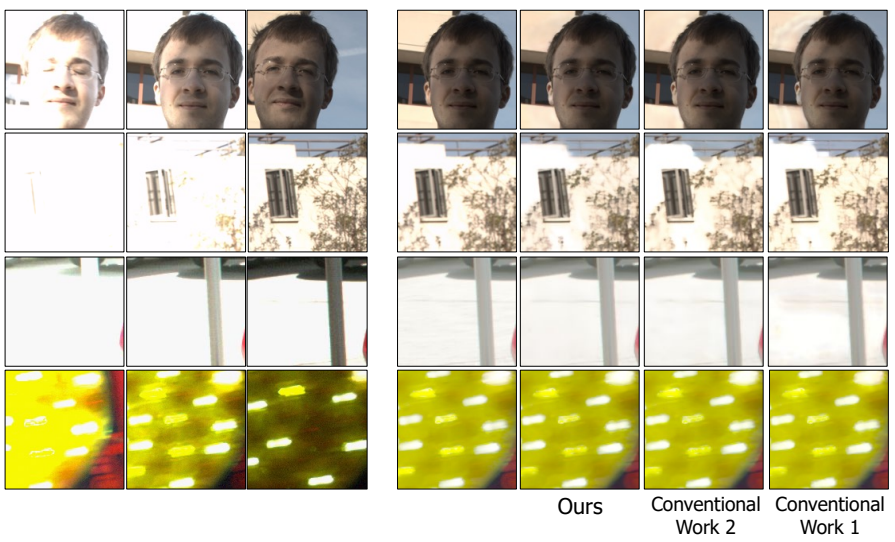
P3: Feature Selection



Utilize channel attention to adaptively learn and assign a weight for each channel

Experiments Result

	PSNR-L	PSNR-T
CW2	42.2538	34.7732
P1	42.2724	34.7570
P2	42.1660	34.7951
P1+P2	42.3098	34.7761
P1+P2+P3	42.4102	34.8931



Ours | Conventional Work 2 | Conventional Work 1

Conclusion

- The proposed method outperforms conventional works on the public dataset

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