Efficient Feature Extraction for High-resolution Video Frame Interpolation

Moritz Nottebaum1  Stefan Roth1,2  Simone Schaub-Meyer1,2

Motivation
Goal: Computationally efficient method for high-resolution video frame interpolation

State-of-the-art Models
• High memory demands for 4K
• High model complexity

Our Approach
• Efficient feature extraction
• Lightweight overall framework

Inter4K Testset
New 4K testset for video frame interpolation
• >100 Scenes
• Sampled from Inter4K video dataset [6]
• More diverse motion

Qualitative Results

Quantitative Results

Ablation

References & Disclosure of Funding

This project has received funding from the European Research Council (ERC) under the European Union’s Horizon 2020 research and innovation programme (grant agreement No. 866008). The project has also been supported in part by the State of Hesse through the cluster project "The Third Wave of Artificial Intelligence (3AI)".

Conclusion
• We propose the fLDR module, an efficient way to extract low-dimensional features for motion estimation.
• Our framework is overall lightweight in terms of memory and trainable parameters.
• We curate a new challenging 4K testset for frame interpolation.
• We achieve state-of-the-art accuracy on X-Test, Inter4K-S and Inter4K-L among approaches without pretrained flow.