FILM

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What is FILM?

- Synthesizes slow-motion video from 2 reference photos
- Feature Extraction
- Flow Estimation
- Fusion

First Frame

+

End Frame

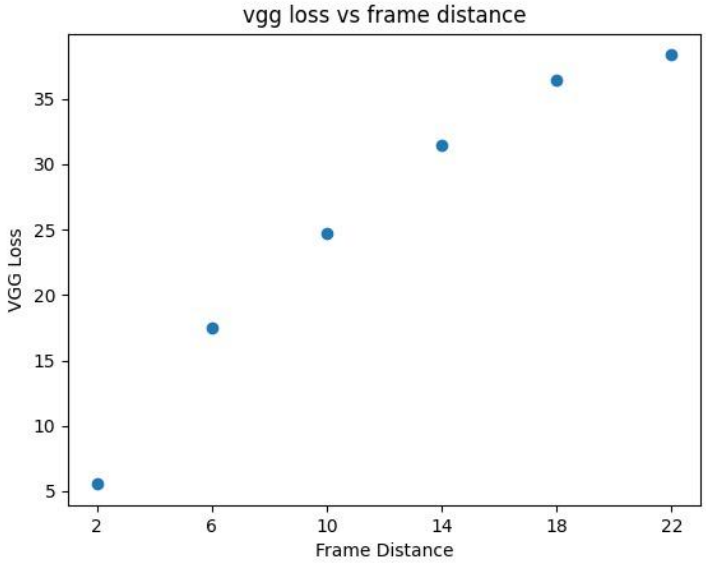
=

Interp Video

What We Did and How

- How accurate is FILM?
- Utilized VGG against true frame to determine error
- VGG Loss VS Frame Distance

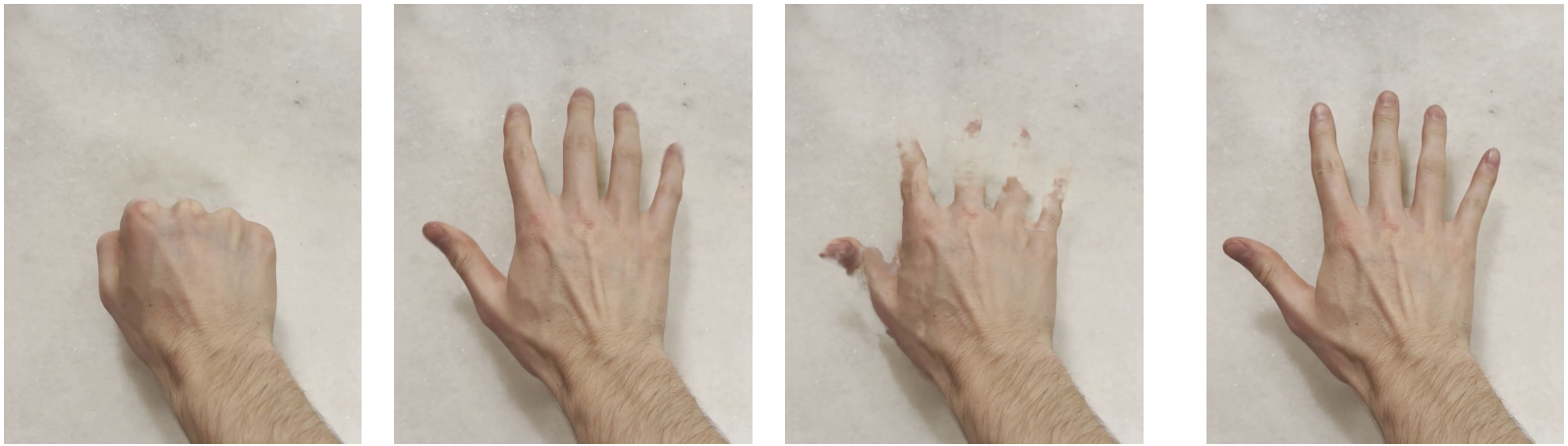
=?



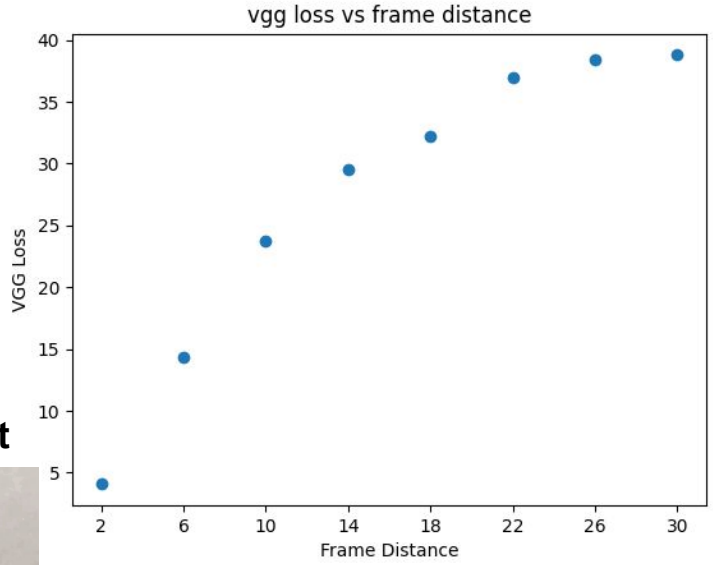
Interpolated Image Metrics

- Utilized Loss function that is used to train interpolation model.
- Loss function calls VGG_19 to determine the features in an image.
- Difference between features in true image compared to interpolated image is the loss.
- Loss(True_Middle_Frame, Interpolated_middle_frame, interpolation_model) = 38

First Frame | **True Middle Frame** | **Interpolated Middle Frame** | **End Frame**



Results



Original Video

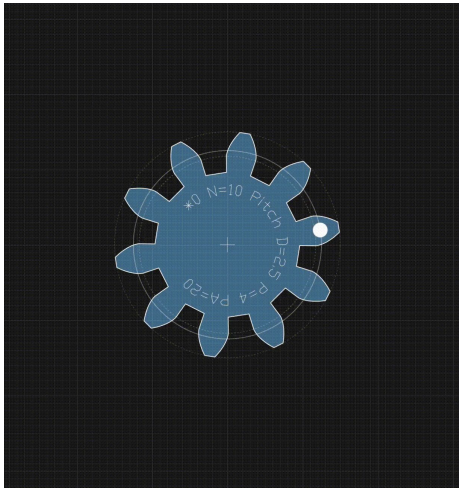
Small Movement

Large Movement

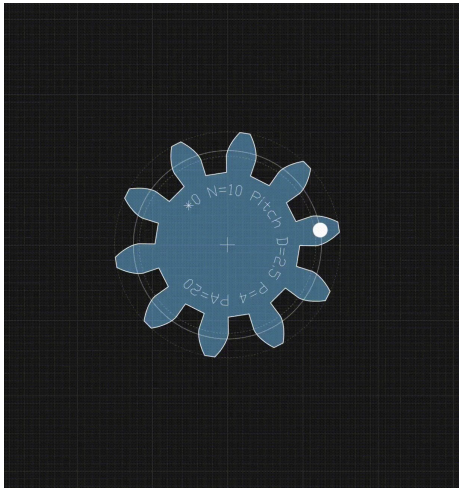
Errors in the loss function

- The VGG loss function could be tricked into giving good results depending on the input images.
- Even though the interpolated video looks somewhat realistic it is moving the wrong way.
- What will the error plot look like?

Original Video

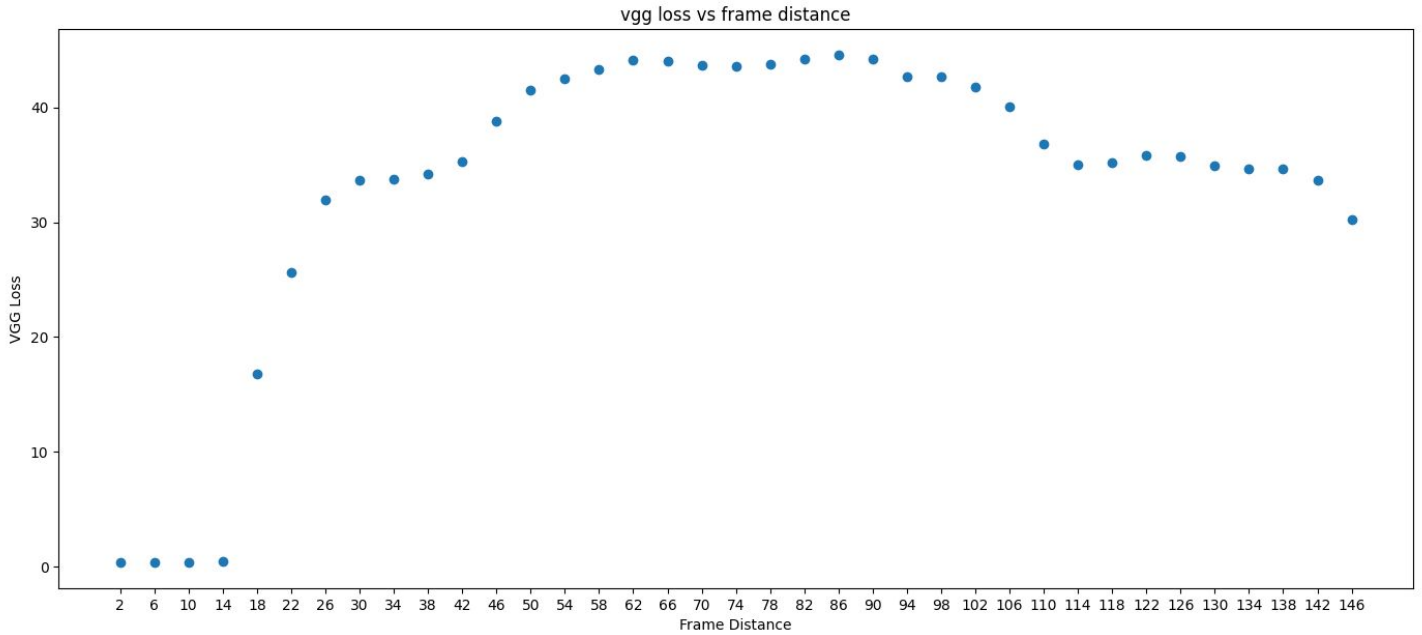


Interpolated Movement



Gear Video Error Plot

- Unlike the hand movement error plot this error decreases after some time.
- Due to notches in the gear looking the same.



Positive Impacts

- Making videos using pictures (obvious)
- Good for increasing video FPS output
- Improvement of frame interpolation technology
- Brings attention to frame interpolation and video improvement
- Applications to similar video improvement technology

Negatives

- Takes a very long time to interpolate
- The video only works at short intervals
- The technology has a ways to go to be very applicable
- Could be used to misinterpret