Video Frame Interpolation

Revue de littérature

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Contenu de cette presentation

- Comprendre le problème

- Revue de littérature

  - Deep bayesian video frame interpolation

  - Exploring Motion Ambiguity and Alignment for High-Quality Video Frame Interpolation

  - IFRNet: Intermediate Feature Refine Network for Efficient Frame Interpolation

  - Uncertainty-Guided Spatial Pruning Architecture for Efficient Frame Interpolation

  - Clearer Frames, Anytime: Resolving Velocity Ambiguity in Video Frame Interpolation

- Que retenir de ces recherches ?

- Conclusion

- Prochaine étape

Interpolation d'images

Le problème

En se basant sur une série d'images

$$\mathcal{I} = I_{-k}, ..., I_0, I_1, ...I_k$$

Construire un modèle $\mathcal{F}$ capable de générer une image intermédiaire.

$$I_t = \mathcal{F}(\mathcal{I}, t), \;\; 0 < t < 1$$

k paramétrise le modèle et le training set, $\mathcal{D} = I\{i-k\}, I\{i+k\}$

- $k = 1$, triplets

- $k = 2$, quintuplets

- $k = 3$, septuplets

Le deep learning nous permet d'approcher ce problème de regression.

Regression "pure"

Le modele $\mathcal{F}$ tente de capturer la relation directe entre l'output I_t et les images adjacentes, ces relations sont encodées dans un training set

TS_

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Some maths

$$y = mx + b$$

Some code

```python
def fibonacci(n):
    if n <= 1:
        return n
    else:
        return fibonacci(n-1) + fibonacci(n-2)
```

References

- Liste des articles
    - Yu, Zhiyang, & al. "Deep bayesian video frame interpolation." Oct 2022.
    - Choi, Kim, & al. "Channel Attention Is All You Need for Video Frame Interpolation" 2020.
    - Zhou, Li, & al. "Exploring Motion Ambiguity and Alignment for High-Quality Video Frame Interpolation" Mar 2022
    - Kong, Jiang, & al. "IFRNet: Intermediate Feature Refine Network for Efficient Frame Interpolation" May 2022
    - Cheng, Jiang, & al. "Uncertainty-Guided Spatial Pruning Architecture for Efficient Frame Interpolation" Oct 2023
    - Zhong, Krishnan, & al. "Clearer Frames, Anytime: Resolving Velocity Ambiguity in Video Frame Interpolation" Nov 2023

- Autres références

The end.