

Video Matting with Convolutional LSTM

Jiahao Zhang
U6921098

Peng Zhang
U6921163

Hang Zhang
U6921112

Abstract

TODO

1. Introduction

background motivation related works contribution summary

2. Problem Statement

definition, and formulation

3. Methods

3.1. Model Structure

3.1.1 Encoder

3.1.2 ASPP

3.1.3 Decoder

3.1.4 ConvLSTM

$$\begin{aligned} \mathbf{i}_t &= \text{Sigmoid}(\text{Conv}(\mathbf{x}_t; \mathbf{w}_{xi}) + \text{Conv}(\mathbf{h}_{t-1}; \mathbf{w}_{hi}) + \mathbf{b}_i) \\ \mathbf{f}_t &= \text{Sigmoid}(\text{Conv}(\mathbf{x}_t; \mathbf{w}_{xf}) + \text{Conv}(\mathbf{h}_{t-1}; \mathbf{w}_{hf}) + \mathbf{b}_f) \\ \mathbf{o}_t &= \text{Sigmoid}(\text{Conv}(\mathbf{x}_t; \mathbf{w}_{xo}) + \text{Conv}(\mathbf{h}_{t-1}; \mathbf{w}_{ho}) + \mathbf{b}_o) \\ \mathbf{g}_t &= \text{Tanh}(\text{Conv}(\mathbf{x}_t; \mathbf{w}_{xg}) + \text{Conv}(\mathbf{h}_{t-1}; \mathbf{w}_{hg}) + \mathbf{b}_g) \\ \mathbf{c}_t &= \mathbf{f}_t \odot \mathbf{c}_{t-1} + \mathbf{i}_t \odot \mathbf{g}_t \\ \mathbf{h}_t &= \mathbf{o}_t \odot \text{Tanh}(\mathbf{c}_t) \end{aligned} \tag{1}$$

3.2. Loss Function

4. Experiments

4.1. Experiment Setup

4.1.1 Datasets

4.1.2 Metrics

4.1.3 Implementation

4.2. Experiment Results

4.2.1 Comparing

4.2.2 Ablation Study

5. Conclusion

Conclusion [1]

6. References

7. References

- [1] Liang-Chieh Chen, George Papandreou, Florian Schroff, and Hartwig Adam. Rethinking Atrous Convolution for Semantic Image Segmentation. *arXiv:1706.05587 [cs]*, Dec. 2017. arXiv: 1706.05587. 1

8. Review

8.1. Self Reflection

8.2. Confidential Peer Review

In doing this project, to the best of my judgement, I confirm that Jiahao Zhang mainly contributed to TODO, and his/her overall contribution is about 34%, Peng Zhang mainly worked on TODO, and his/her contribution is about 33%, and Hang Zhang was responsible for TODO, and his/her contribution counts about 33% of the total project workload.

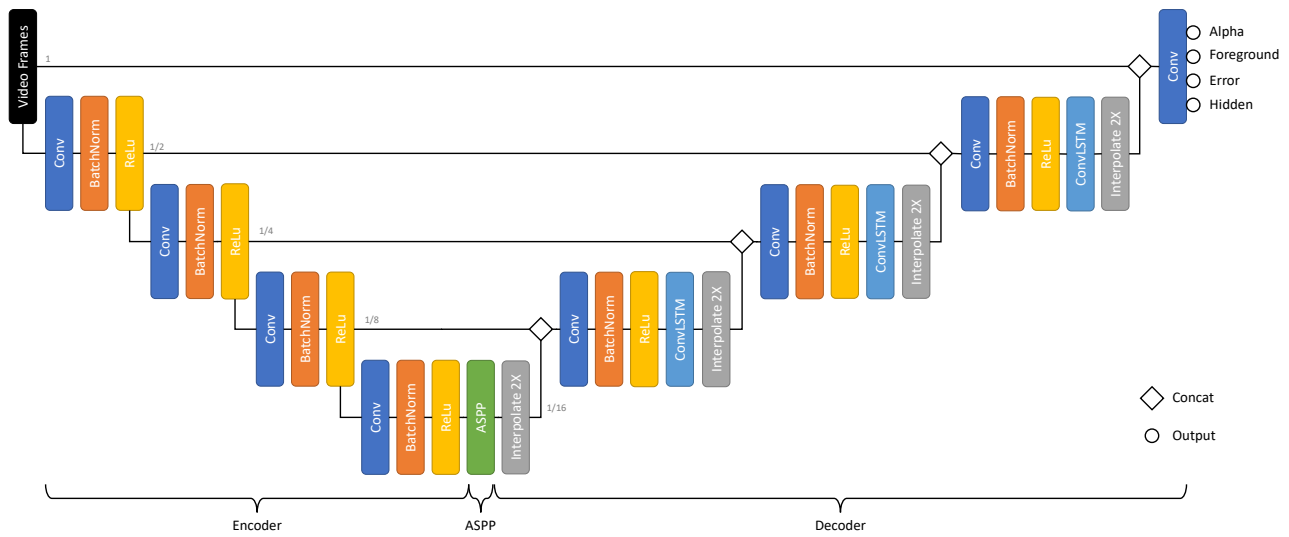


Figure 1. The architecture of our network.