Meta Transferring for Deblurring

Author: Po-Sheng Liu, Fu-Jen Tsai, Yan-Tsung Peng, Chung-Chi Tsai, Chia-Wen Lin, Yen-Yu Lin
National Yang Ming Chiao Tung University, Taiwan

Introduction

This work proposes a reblur-deblur meta-transferring scheme for test-time adaptation, composed of meta-training and meta-testing phases. In a meta-training scenario, we consider deblurring each video in the training set as a task. Figure above depicts the proposed reblur-deblur meta-transferring training scheme, where the inner update trains a deblurring model on the support set generated by the reblurring model, and the outer update trains the deblurring and reblurring models adapted to the query set. Because of no ground truth at inference, we instead use the proposed reblurring model to generate pseudo-blurred patches from pseudo-sharp patches selected from blurred video frames.

Proposed Method

The paper proposes a reblur-deblur meta-transferring scheme for test-time adaptation, composed of meta-training and meta-testing phases. In a meta-training scenario, we consider deblurring each video in the training set as a task. Figure above depicts the proposed reblur-deblur meta-transferring training scheme, where the inner update trains a deblurring model on the support set generated by the reblurring model, and the outer update trains the deblurring and reblurring models adapted to the query set. Because of no ground truth at inference, we instead use the proposed reblurring model to generate pseudo-blurred patches from pseudo-sharp patches selected from blurred video frames.

Experimental Results

Evaluation results on three datasets and four SOTA deblurring models. “Baseline” means the deblurring results obtained using the original models pre-trained on GoPro. “Meta” means the results using “Baseline” with our reblur-deblur meta-transferring scheme.