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OBERSEMINAR BILDVERARBEITUNG, COMPUTERSEHEN UND COMPUTERGRAPHIK

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Albert-Ludwigs-Universität Freiburg
Institut für Informatik

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Prof. Dr. Matthias Teschner
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Am Dienstag, 11.07.2017, 15:00 h, berichtet Herr Osama Makansi über das Ergebnis seiner Masterarbeit:

End-to-End Learning of Video Super-Resolution with Motion Compensation

Abstract:
The task of reconstructing higher resolution video frames given the low resolution ones has been studied for a long time. Recently deep learning techniques started to achieve promising results in terms of accuracy and run-time, solving many computer vision tasks including the video super-resolution task. The estimated motion between the input frames plays an important role in predicting the high resolution frame. Using this motion is utilized by warping the input frames to compensate for that motion. Many of the recent approaches used precomputed flows to warp the frames and then trained a network for predicting the output high resolution frame. In this report, we analyze some recent approaches and propose an end-to-end network that can estimate jointly the motion and the high resolution frames. On the other hand, we test many architectures for single image super-resolution and find that a simple architecture consisting of only few layers can achieve good accuracy. Moreover, we provide a new operation combining upsampling and backward warping (named as JUBW) on the input frames in order to compensate for the estimated motion. This method warps the neighboring low resolution frames toward the center frame and fuses their details into the high resolution grid without any interpolation. Finally, we conduct experiments where we compare our architecture including the proposed warping method to other methods. Our testing results are superior to the current state-of-the-art approaches.

Zeit: Tuesday, 11.07.2017, 15:00 h
Ort: Geb. 052, 01-033

Interessenten sind herzlich eingeladen.

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