DeMoN: Depth and Motion Network for Learning Monocular Stereo

Benjamin Ummenhofer, Huizhong Zhou, Jonas Uhrig, Nikolaus Mayer, Eddy Ilg, Alexey Dosovitskiy, Thomas Brox

Project Page

Acknowledgements

References

Flow Confidence

Depth Comparison

Network Architecture

Training

Skew Invariant Gaussian

Depth & Motion Parameterization

Motion

Quantitative Comparison

Performance slightly decays with many more iterations (>10) but remains close to the single image methods.

Estimated depth values need to correspond to the normalized translation. To facilitate adjusting the depth values we predict a scale factor along with the motion estimate and obtain .

The local pairwise cameraposes are consistent with the ground truth. The loss on the sig images stimulates spatial comparisons and the loss on the scale images emphasizes importance of depth discontinuities.

The local pairwise cameraposes are consistent with the ground truth. The loss on the sig images stimulates spatial comparisons and the loss on the scale images emphasizes importance of depth discontinuities.

DeMoN consists of three subnets: bootstrap net, refinement net, and the motion estimate and obtain .

The local pairwise cameraposes are consistent with the ground truth. The loss on the sig images stimulates spatial comparisons and the loss on the scale images emphasizes importance of depth discontinuities.

DeMoN explicitly solves the more ambiguous stereo problem. Two images are better than one?!

The local pairwise cameraposes are consistent with the ground truth. The loss on the sig images stimulates spatial comparisons and the loss on the scale images emphasizes importance of depth discontinuities.

The local pairwise cameraposes are consistent with the ground truth. The loss on the sig images stimulates spatial comparisons and the loss on the scale images emphasizes importance of depth discontinuities.

References


