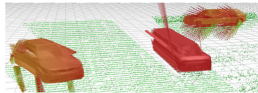
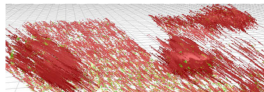


Dense, Robust, and Accurate Motion Field Estimation from Stereo Image Sequences in Real-Time

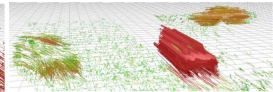
C. Rabe, T. Müller, A. Wedel, and U. Franke (ECCV 2010)



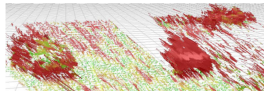
(a) Ground truth



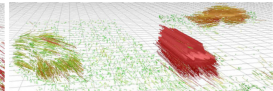
(b) Direct combination of optical flow and stereo



(d) Dense6D



(c) Scene flow



(e) Variational6D

- ▶ Estimating the three-dimensional motion vector field from stereo image sequences
- ▶ Combining variational optical flow with Kalman filtering for temporal smoothness
- ▶ Real-time with parallel implementation on a GPU and an FPGA
- ▶ Comparing
 - ▶ Differential motion field estimation from optical flow (Horn & Schunck) and stereo (SGM)
 - ▶ Variational scene flow from two frames
 - ▶ Kalman filtered method, using dense optical flow and stereo (Dense6D)
 - ▶ Filtered variational scene flow approach (Variational6D)
- ▶ Dense6D and Variational6D perform similarly, the latter is computationally more complex.