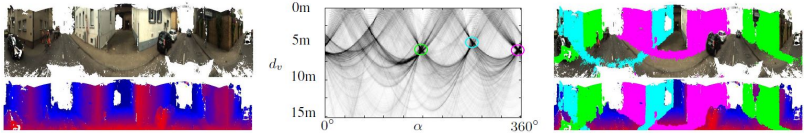


Omnidirectional 3D Reconstruction in Augmented Manhattan Worlds

M. Schönbein and A. Geiger (IROS 2014)



- ▶ High-quality omnidirectional 3D reconstruction from catadioptric stereo video sequences
- ▶ Optimization of depth jointly in a unified omnidirectional space
- ▶ Applying plane-based prior even though planes in 3D do not project to planes in the omnidirectional domain
- ▶ Omnidirectional slanted-plane Markov random field model
- ▶ Plane hypotheses are extracted using a novel voting scheme for 3D planes in omnidirectional space
- ▶ Evaluation on novel dataset captured using autonomous driving platform AnnieWAY with Velodyne HDL-64E laser scanner for ground truth depth
- ▶ Outperforms stereo matching techniques quantitatively and qualitatively