

Perceptual real-time 2D-to-3D Conversion using Cue Fusion – Supplemental Material

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1 WEIGHT FACTORS

Here we give the weight factors β (Section 3.2 and 3.3) that were used for all results:

Scene class	Aerial per.	Defocus	Van. point	Occl.	Motion
Close-up	0.14	0.44	0.10	3.24	0.40
Coast	0.11	0.23	0.20	6.12	0.40
Forest	0.16	0.29	0.30	5.96	0.40
Indoor	0.05	0.26	0.30	6.31	0.40
Inside City	0.16	0.28	0.30	5.64	0.40
Mountain	0.32	0.31	0.20	6.99	0.40
Op. Country	0.41	0.26	0.20	8.02	0.40
Portrait	0.09	0.36	0.05	5.21	0.40
Streets	0.16	0.27	0.40	6.36	0.40
Tall Build.	0.16	0.29	0.30	6.19	0.40

2 EXTENDED CUE INFLUENCE ANALYSIS

In this section we provide an extended cue influence analysis by considering confidence statistics per scene class. The main results are given in Fig. 1. The results were generated by running our system on 3000 images (300 per scene class) and recording mean and standard deviation of estimated confidence per cue and per scene class. To allow for a large and versatile test dataset we chose to use still images. Therefore, the motion cue could not be considered in this analysis.

The acquired data reveals close resemblance to common knowledge and the intuition behind the depth cues: Aerial perspective is an important cue for outdoor scenes with vista-type layout, like “coasts”, “mountains”, and “open countries”. The defocus cue is not a property of the depicted scene but rather of the imaging modalities. Therefore, the confidence distribution is close to uniform across the individual scene categories, although a stronger contribution would have been expected for “close-ups” and “portraits” where telephoto lenses are common. Vanishing points provide confident information in man-made environments, like “indoor”, “inside city”, “street”, and “tall buildings”. Surprisingly, also “close-ups” have a very strong mean confidence for this cue, which may be attributed to the tendency of this scene class to depict distinct (out-)lines. Occlusions tend to occur mostly in scenes with clutter or high geometric complexity, like “forests”, “inside city”, “streets”, and “tall buildings”.

The partly high intra-class standard deviation reflects the diversity and heterogeneity of the test dataset.

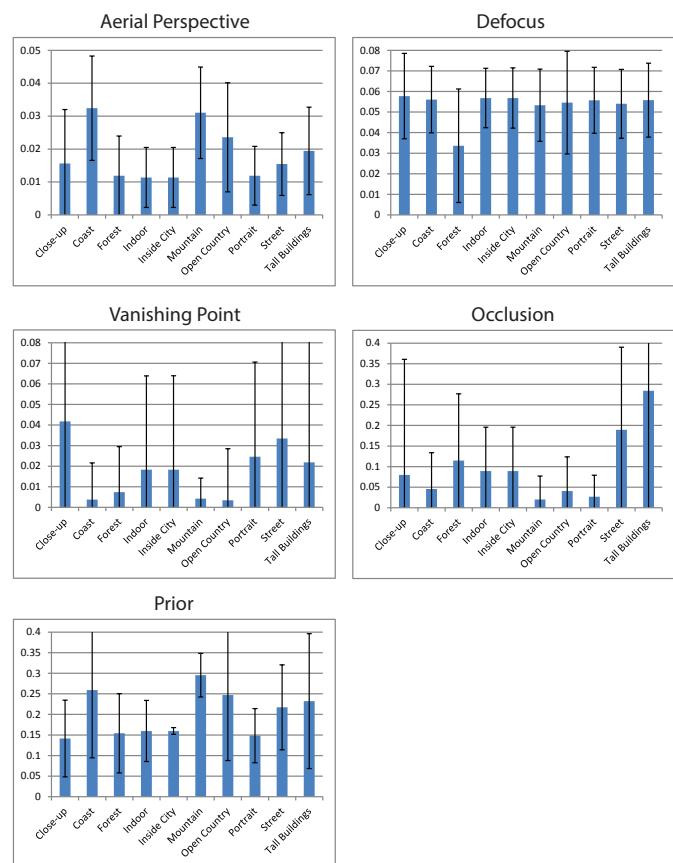


Fig. 1. Extended cue influence analysis: Mean and standard deviation of confidence per cue per scene class.