

Stereoscopic Hallucinations

Depth Ordering Comparison

Introduction

- **Compared methods:**

We evaluate our depth ordering algorithm comparing with [Jia et al., CVPR12] and [Palou and Salembier, TIP13]. We re-implemented Jia's method, and Palou has provided his executable to us. Several qualitative comparisons will be shown later.

- **Datasets:**

1. D-order dataset provided in [Jia et al., CVPR12] with ground truth information, including 1087 images. We randomly selected half of them for training and half for testing (training images are required in Jia's method). The testing images are used for comparison experiment and related statistic analysis.

2. Our dataset contains near-view images are collected from the Internet, and relevant layer ground truth for each image is labelled manually. Our dataset contains 52 images, 26 for training and 26 for testing.

Introduction

- We quantitatively compare the performance according to the accuracy of pairwise ordering between pairs of adjacent segments compared with ground truth. Accuracy, precision, recall, F-measure are calculated for comparison.

$$Accuracy = \frac{Concordant\ seg\ pairs}{Concordant\ seg\ pairs + Discordant\ seg\ pairs\ (comparing\ with\ GT)}$$

$$Precision = \frac{Totally\ concordant\ images}{Totally\ concordant\ images + Partially\ concordant\ images}$$

$$Recall = \frac{Totally\ concordant\ images}{All\ images}$$

$$F - measure = \frac{2 * Recall * Precision}{Precision + Recall}$$

Results – Adjacent Pairs

- Here we show the quantitative comparison of the three methods on both datasets. Only pairs of adjacent segments are considered

**D-order
dataset:**

Method	Accuracy	Precision	Recall	F-measure
Ours	89.56%	63.94%	62.69%	62.98%
Jia2012	89.26%	63.84%	63.25%	63.54%
Palou2013	52.80%	15.74%	14.68%	15.19%

**Our
dataset:**

Method	Accuracy	Precision	Recall	F-measure
Ours	82.66%	45.83%	44%	44.9%
Jia- 26 training	62.4%	33.3%	33.3%	33.3%
Jia-541 training	79.84%	40%	40%	40%
Palou	43.85%	13.04%	12%	12.5%

Results – All Pairs

- Here we consider the depth relationships between all segment pairs, not only those adjacent to each other.

Dataset	Methods	Accuracy	Precision	Recall	F-measure
our dataset	Ours	84.6%	16%	16%	16%
	Jia- 26 training	25.68%	0%	0%	0%
	Jia-541 training	29.88%	0%	0%	0%
	Palou	43.56%	8.33%	8%	8.16%
d-order dataset	Ours	83.88%	15.71%	15.71%	15.71%
	Jia-541 training	39.58%	01.32%	01.31%	01.31%
	Palou	50.66%	11.07%	10.71%	10.89%

Thank you!