Depth Map Generation on More Realistic Scenes

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MediaTek
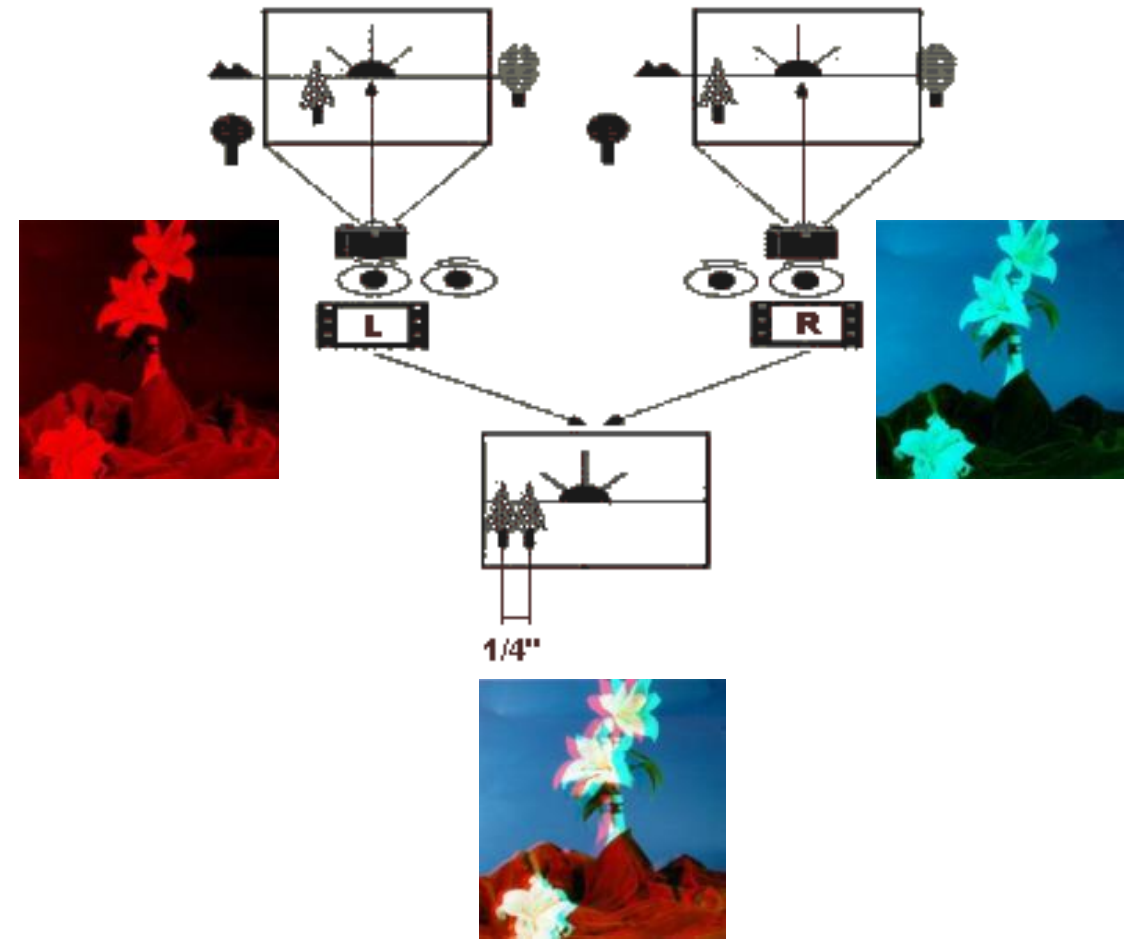
Introduction to Depth Estimation

Stereo matching

Estimated depth from stereo

Parallax from stereo

Application : Bokeh Effect (背景虛化)

One of several input photos   Depth map (black close, white far)

Photo by Colby Brown
Photo with Lens Blur
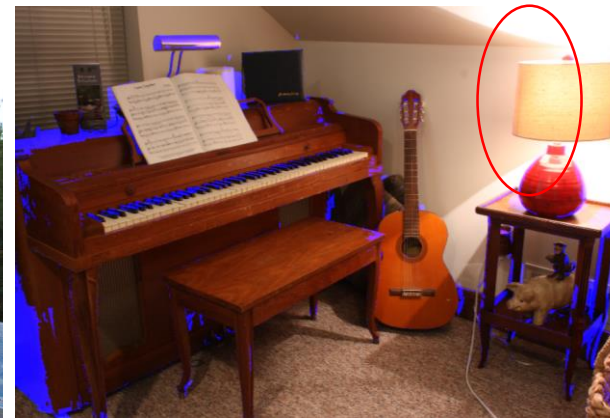
Domain Characteristics Differ

- Real dual cam @ real world

- Under-determined (ill-posed)
  - Repetitive patterns
  - Photometric variations
  - Texture-less areas
  - Occlusions
  - Reflections

Photometric variations

Repetitive pattern

Occlusions & Texture-less

Reflections

New Challengers for you

- Synthetic data with data augmentation
- Real smartphone dual-cam data

Provided Utilities

- Util.py – Read/write disparity files(.PFM) and calculate error
- Visualize.py – Visualize disparity files(.PFM)

Scoring

- 10 L/R synthetic images with ground truth depth
  - Get as less end point error as possible
- 10 L/R dual-cam images
  - Subjective scoring