Deep Automatic Portrait Matting

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http://www.cse.cuhk.edu.hk/leojia/projects/automatting

Introduction

Problem
• Image Matting needs tedious user interactions
• The interactions are difficult to meet the algorithm requirement

Contributions
• We proposed automatic portrait matting
  • An end-to-end deep matting CNNs framework
  • Novel matting layers
  • A matting dataset with 2,000 portraits

Challenges
• Learn automatic matting is very difficult
  • Rich matte details
  • Ambiguous semantic prediction
  • Discrepant matte value

Dataset
• 2,000 portraits downloaded from Flickr
  • 1,700 for training and 300 for testing
  • Different age, gender, pose, hairstyle, background, camera type, etc.
  • The matting ground truth is estimated by human well labeled trimap

Our Framework

Trimap Labeling
• Input: RGB image
• Output: trimap representation
• Network: FCN [Long et al. 2015]

Image Matting Layer
• Input: trimap representation
• Output: alpha matte
• Newly-designed layers

Experiments

Results of our deep automatic matting.