SimpSON: Simplifying Photo Cleanup with Single-Click Distracting Object Segmentation Network

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Introduction

Distractor Selection for Photo Cleaning

Image + User click

Dense Segmentation

Mask2Former [1]

EntitySeg [2]

❌ Cannot select out-of-domain objects (class-specific segmentation)

❌ Requires click for each instance (class-agnostic segmentation)

Interactive Segmentation

FocalClick [3]

RiTM [4]

❌ Requires multiple clicks for each object

❌ Requires at least one click for each instance

SimpSON: Select object with single-click and find similar objects automatically

1C-DSN

IDS+PVM

SimpSON includes three stages with three modules:

Experiments

SimpSON: Select object with single-click and find similar objects automatically

Dataset synthesizing pipeline

Our real Distractor20K dataset

1. Bowen Cheng et al., Masked-attention mask transformer for universal image segmentation, CVPR 2022
2. Lu Q et al., Open-world entity segmentation, TPAMI 2022
3. Xi Chen et al., Towards practical interactive image segmentation, CVPR 2022
4. Konstantin Soffiuk et al., Reviving iterative training with mask guidance for interactive segmentation, ICIP 2022
5. D Goldman et al., Content Aware Fill, Photoshop feature 2010

LVIS DistractorReal

Small (DistractorReal)

Medium (DistractorReal)