DoveNet: Deep Image Harmonization via Domain Verification

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Motivations

- Given a composite image, mage harmonization aims to making the pasted foreground compatible with the background.
- The lack of high-quality publicly available dataset for image harmonization hinders the development of image harmonization techniques.
- There are still limited deep-learning based research in image harmonization field.
Dataset iHarmony4 Construction

- Based on COCO, Adobe5k, Flickr and day2night dataset, we constructed HCOCO, HAdobe5k, HFlickr and Hday2night sub-dataset.
- After foreground segmentation, the foreground appearance is adjusted either by exchanging to another style or by color mapping from reference object to target object.
- Automatic filtering and manual filtering are applied to improve the quality.
iHarmony4 Dataset

- It’s the first publicly available large-scale image harmonization dataset.
- Guarantee both the high quality and large diversity of composite images.
DoveNet

- We leverage an attention enhanced generator and two complementary discriminators.
- Domain verification discriminator extracts the domain representations of foreground and background, and matches the foreground domain to background domain.
Visual Results

Ground truth  |  Input  |  DIH  |  S²AM  |  DoveNet (w/o ver)  |  DoveNet
Thanks for watching!

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More details
Project GitHub page