Interactive Class-Agnostic Object Counting

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Introduction

Class-agnostic counting count the number of objects with user-specified exemplars. This is crucial for applications like crowd control in public security and car counting in traffic management.

Motivation: Class-agnostic methods often err due to variations in object size, shape, and color, as well as high density and occlusion. To address this, we propose a framework that integrates human feedback to correct these errors.

Main Contributions:
- **Interpretation**: interpret the predicted density map into an intuitive result.
- **Feedback collection**: A feedback collection scheme that requires minimal user effort.
- **Adaptation**: An effective adaptation approach that incorporates the user’s feedback to improve the visual counter.

Method Details

- **Visual Counter**

- **Adaptation**

- **Feedback Collection**

- **Interpretation**

- **Input Image with Exemplars**

- **Qualitative result: the left is before interaction. The highlighted region is the selected region.**

- **GT: 53.38, Pred: 51.43, AE: 41.45**

- **GT: 53.39, Pred: 53.96, AE: 41.86**

- **GT: 54.58, Pred: 53.47, AE: 41.77**

- **GT: 55.03, Pred: 53.46, AE: 46.68**

- **FSC-147 Test Set**

- **FSC-LVIS Test Set**

- **MAE**: 22.08 99.54 41.26 57.87
- **RMSE**: 32.52 -1.1 40.36 -2.2 57.85 -0.0
- **FSC-147 Test Set**
- **MAE**: 11.75 75.37 24% 34.13 41%
- **RMSE**: 13.56 91.31 15 45 28.73
- **FSC-LVIS Test Set**
- **MAE**: 13.01 99.42 31% 14.83 29.01 2.2
- **RMSE**: 9.42 31% 80.69 12% 10.45 32% 18.42 36%

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