

Detection of overlapping objects

Computer Vision (CS6350)

TPA - 9

1. Problem Statement

The task is to detect overlapping objects from 2D images. For example, a 2D image containing a bunch of coins, cell detection in biomedical images, etc. Although a plethora of algorithms exists, accurate detection is challenging because of object-to-object variability, object shape irregularities, presence of cluttered & overlapping objects, image noise and contrast which requires problem-specific tailoring of algorithms. The goal of this project is to develop an efficient algorithm to accurately detect coins in an image containing coins and Green Fluorescent Protein (GFP) labeled nuclei in 2D scans of mouse brains.

2. Input

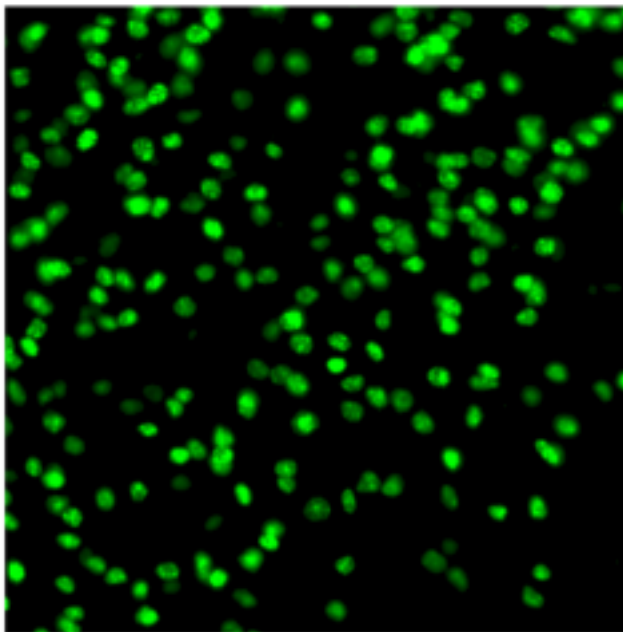
- 2D image consist of Coins on a table
- 2D image consist of Vegetables
- Images/tiles consisting of Green Fluorescent Protein (GFP) tagged cells. Shown in fig3.



Fig 1



Fig. 2



Image

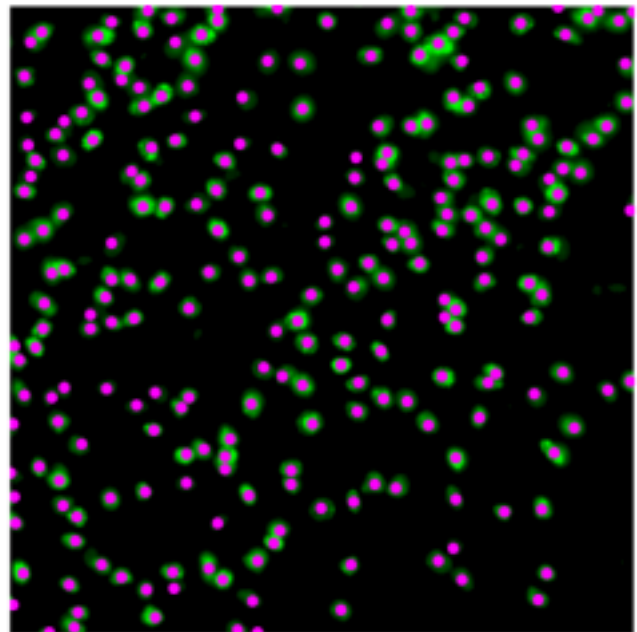


Image with GT (as magenta dots)

Figure 3: Left: An input tile (after contrast enhancement); Right: GT cell centers overlaid on the input image.

3. Expected Output

- **Qualitative Results:** Location of the coin/fruit/cell-nuclei in the image.
- **Quantitative Results:** Precision-Recall values for each test image provided.

4.Dataset

- GFP Dataset (will be provided)
- Coin Dataset
- Fruit Dataset

5.References

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