



Panel Extraction for Double Feature Comics

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A.

Introduction

The goal of this work is to extract panels from double feature comics. This task is challenging due to the varying sizes and shapes of panels, as well as the presence of text and other non-panel elements.

The panels in a comic book are usually of different sizes and shapes. They can span across the entire page and lack clear boundaries. Given a comic image the model should be able to recognize how many panels are present in the image.

B.

Methods

Approach 1: Canny Edge Detection and Contouring with connected component analysis

Approach 2: Holistically Nested Edge Detection and contouring with connected component analysis

C.

Data

The dataset includes extracted panels for 4 issues of Tales of Suspense, which is a double feature comic of Iron Man and Captain America. A total of 96 images were used for analysis.

D.

Results

Visualization of panels recognized by the algorithms:



Performance of models:

Methods	Accuracy	Absolute Mean Difference
Approach 1	85%	3
Approach 2	87%	2

*Here accuracy is measured as percentage of images for which the difference between predicted and actual number of panels is equal to or less than 2.

E.

Conclusion

We have discussed two approaches for panel detection in double feature comics. The simplest approach, Approach 2 works best for the dataset we have. It is probably because of the uniform shapes of panels in the images we have chosen for our analysis. Compared to the state-of-the-art model, which has 91.8% panel accuracy this model comes in pretty close. We can try to use deep learning models by giving it a large dataset to train on. Another improvement would be to use the approach 2 to extract panels and feed it as input to the Mask R-CNN model to see if it improves the accuracy.

F.

Future Work

- Test the model on comics from different artists and publishers
- Test the model on comics from a different timeline
- Identifying speech bubbles and narration bubbles

References

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