

Improving Image Segmentation with Edge Detection and Filters

Jing Lin & Maggie Wu

Motivation

- Unclear edge definition

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Approaches



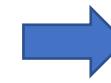
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Approaches



Edge Detection



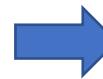
Approaches



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Edge Detection



Sharpen Filter

$$\begin{bmatrix} 0 & -1 & 0 \\ -1 & 5 & -1 \\ 0 & -1 & 0 \end{bmatrix}$$



Approaches



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Edge Detection



Sharpen Filter

$$\begin{bmatrix} 0 & -1 & 0 \\ -1 & 5 & -1 \\ 0 & -1 & 0 \end{bmatrix}$$



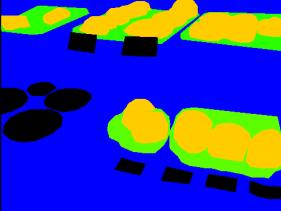
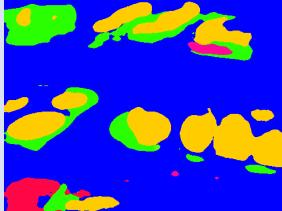
Combined Technique



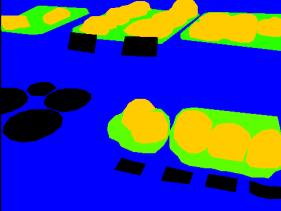
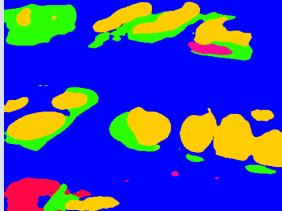
$$\begin{bmatrix} 0 & -1 & 0 \\ -1 & 5 & -1 \\ 0 & -1 & 0 \end{bmatrix}$$



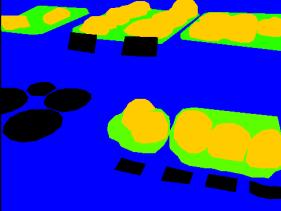
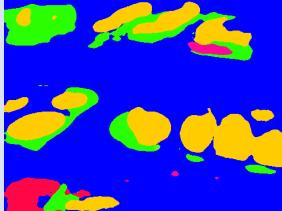
Results & Discussion

Images	Original	Ground Truth	Baseline	Edge Detection	Filter	Edge Detection + Filter
Pool						
Bread						

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Contributions

- Jing
 - Parse scene segmentation via NN on AWS
 - Implement filter technique
- Maggie
 - Implement edge detection technique
 - Provide error analysis