

# Pearing Images

Cristian M. Luna



• Search and Post Food



- Search and Post Food
- Upload Images



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- Upload Images

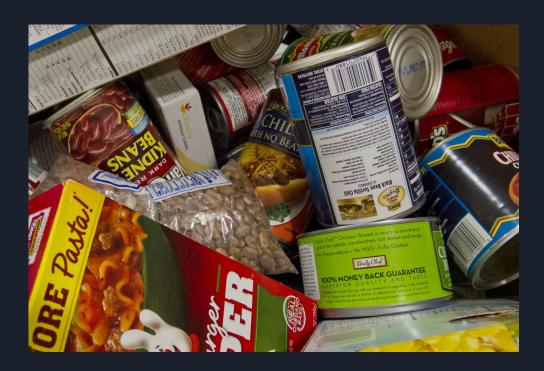
Problem



- Search and Post Food
- Upload Images

#### Problem

Manually Input Information



- Search and Post Food
- Upload Images

#### Problem |

- Manually Input Information
- User error



- Search and Post Food
- Upload Images

#### Problem |

- Manually Input Information
- User error
- Food waste



## Solution



## Image Classification System





• Reduce user error



- Reduce user error
- Tags



- Reduce user error
- Tags
  - Easier Search



- Reduce user error
- Tags
  - Easier Search
  - Less Food Waste



- Reduce user error
- Tags
  - Easier Search
  - Less Food Waste
- User Images



- Reduce user error
- Tags
  - Easier Search
  - Less Food Waste
- User Images
  - Better Model





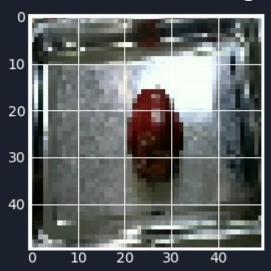
# Kaggle

# Kaggle

• 44k Fruit Images

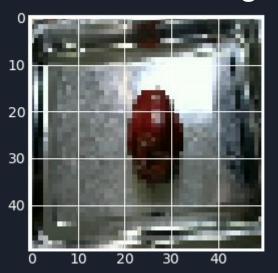
# Kaggle

44k Fruit Images



# Kaggle

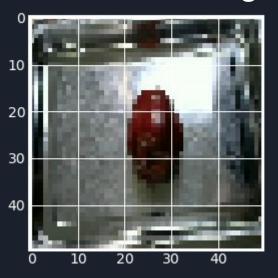
44k Fruit Images



- 15 Types of Fruit
  - o 2 5k Images

## Kaggle

44k Fruit Images

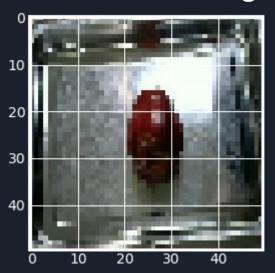


- 15 Types of Fruit
  - o 2 5k Images

Lighting, Positioning, and Quantity

## Kaggle

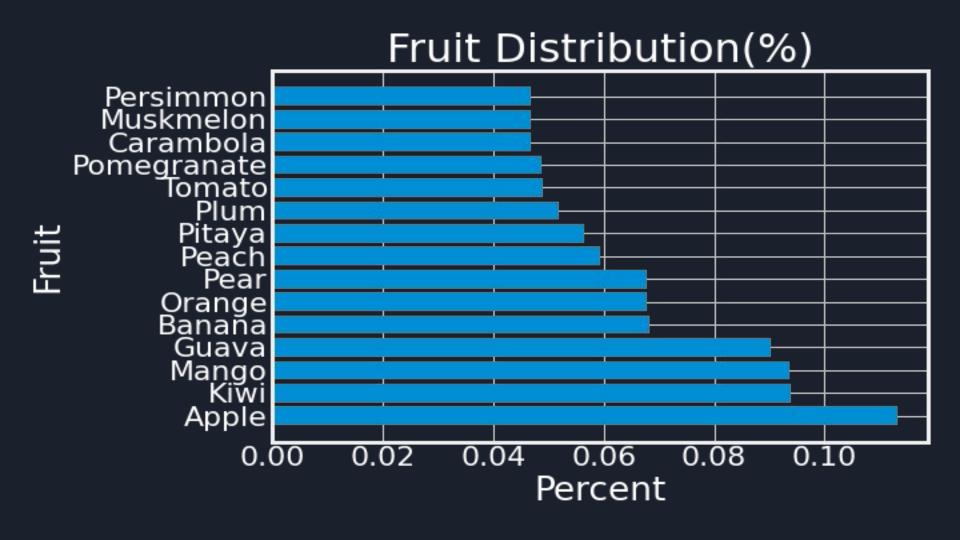
44k Fruit Images



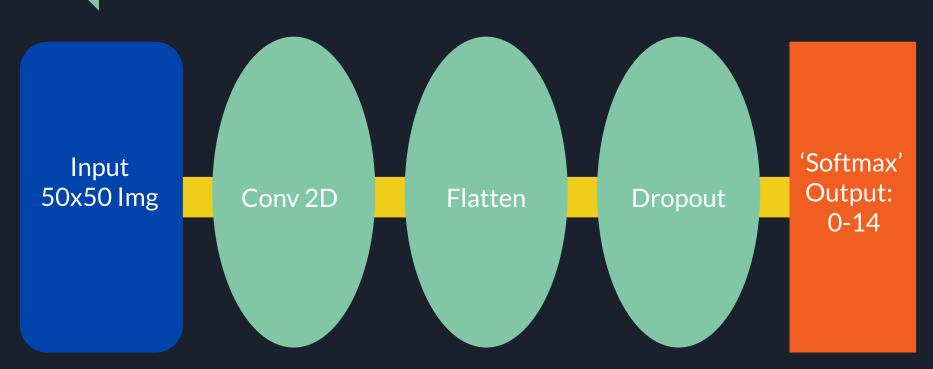


- 15 Types of Fruit
  - o 2 5k Images

Lighting, Positioning, and Quantity

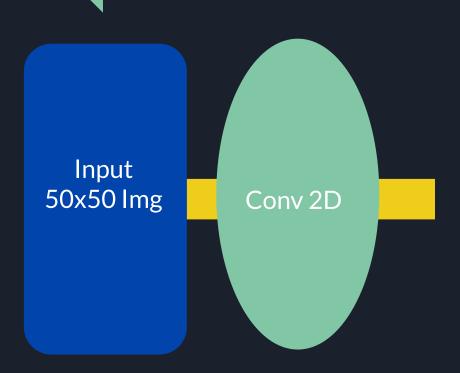




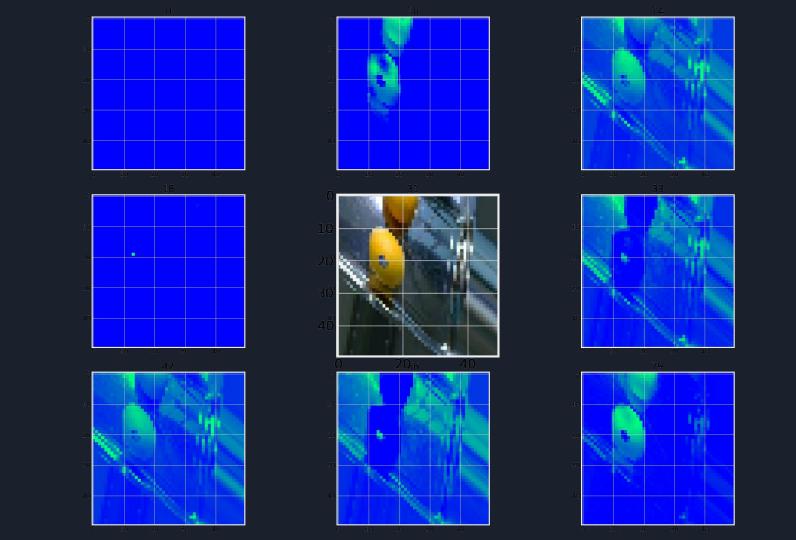


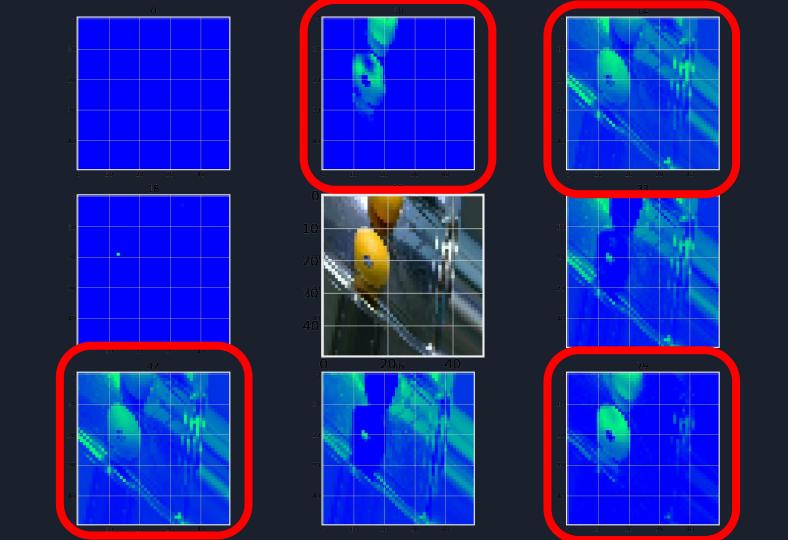
Input 50x50 Img

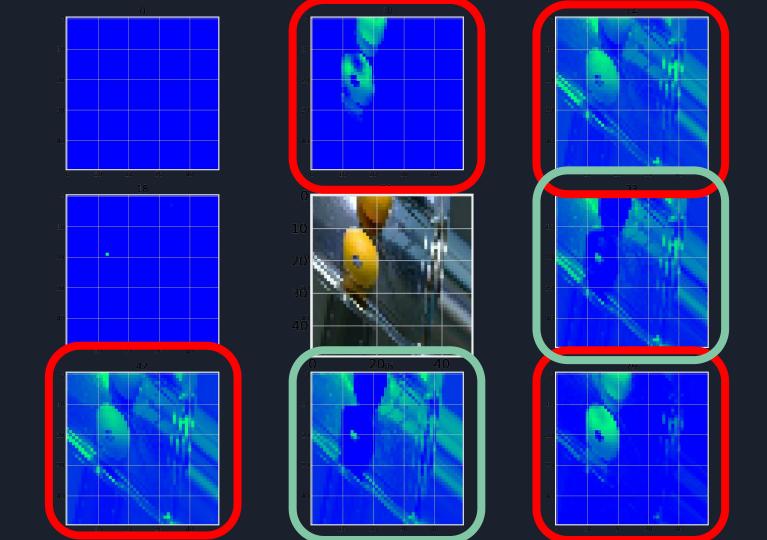


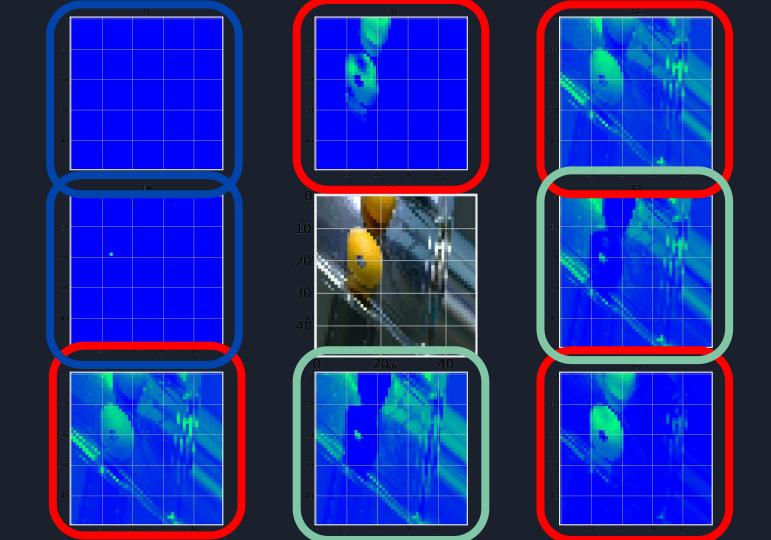


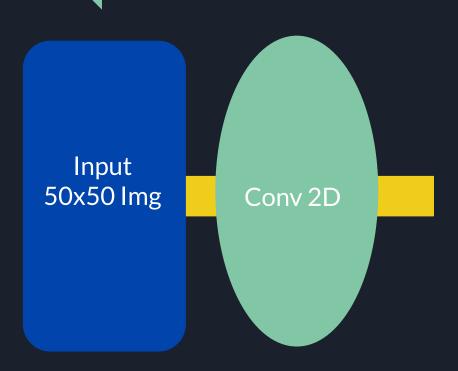


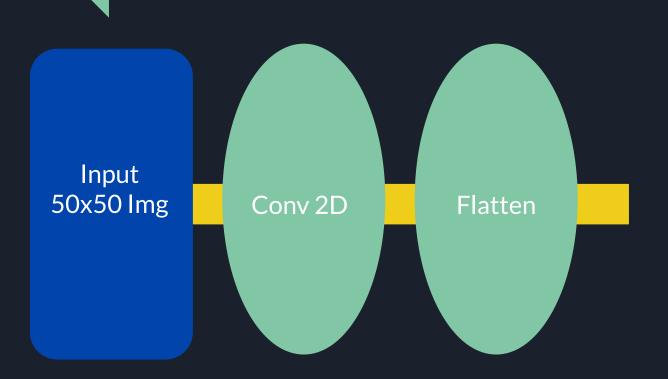


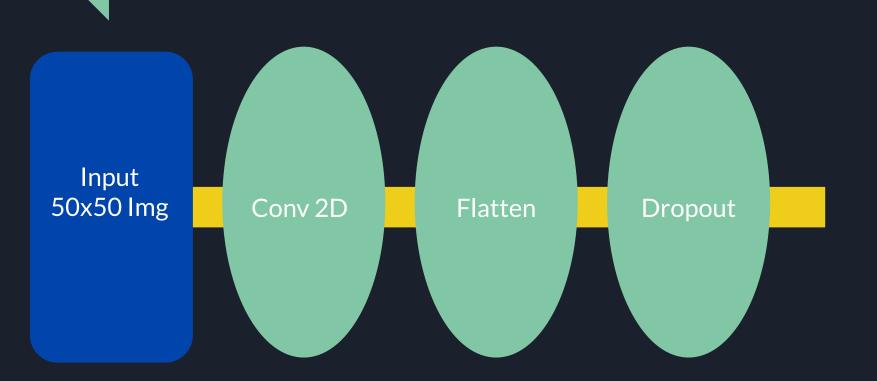


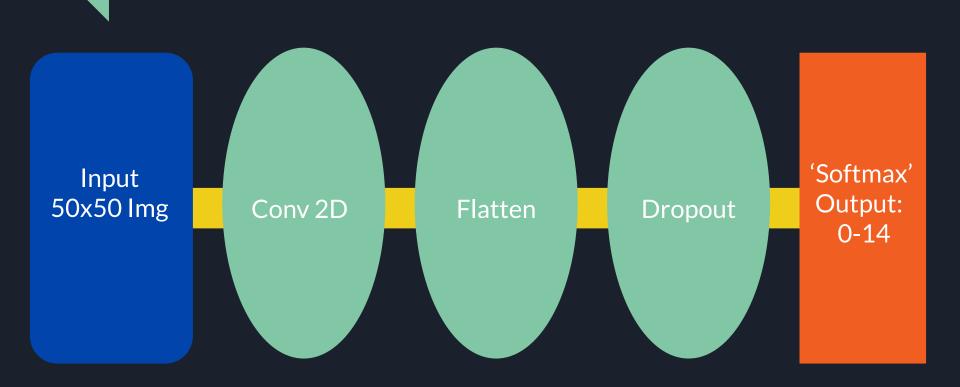




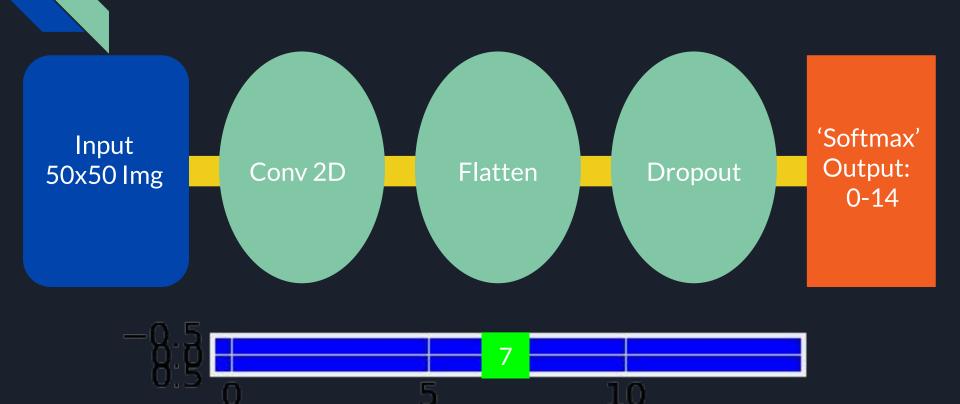








#### Neural Network



## Performance



Precision: 96.33%

Precision: 96.33%

Recall: 96.13%

Precision: 96.33%

F1: 96.17%

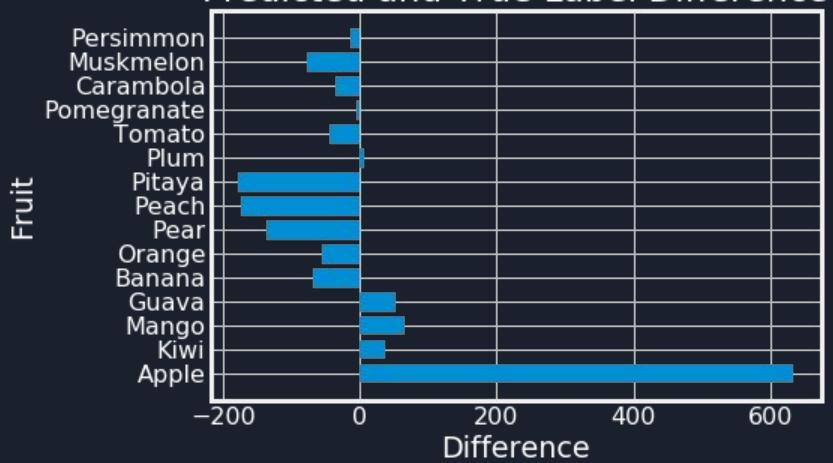
Recall: 96.13%

Precision: 96.33%

F1: 96.17%

Recall: 96.13%

#### Predicted and True Label Difference



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#### Predicted and True Label Difference





#### Actual: Muskmelon



Actual: Muskmelon



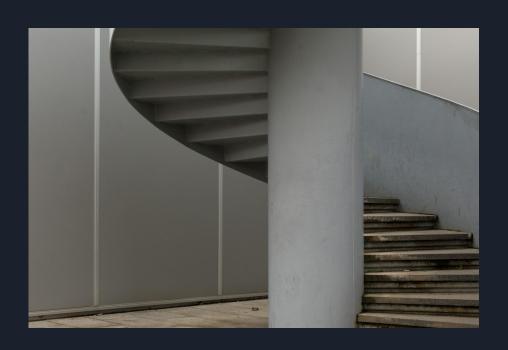
Predicted: Apple

Actual: Muskmelon

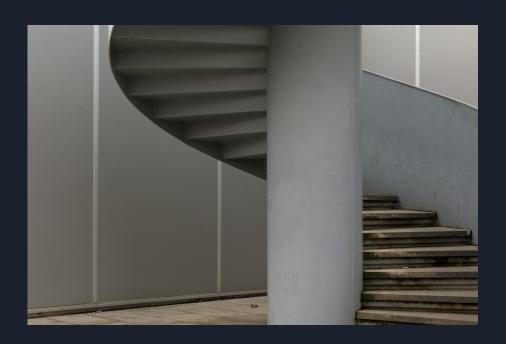


#### Predicted: Apple

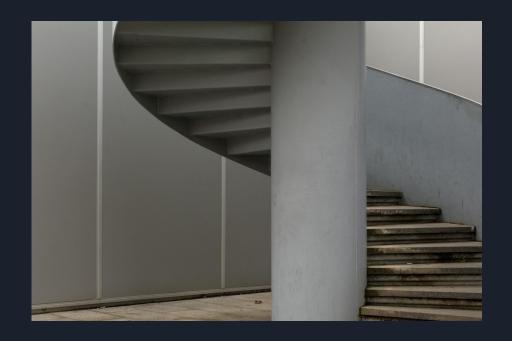




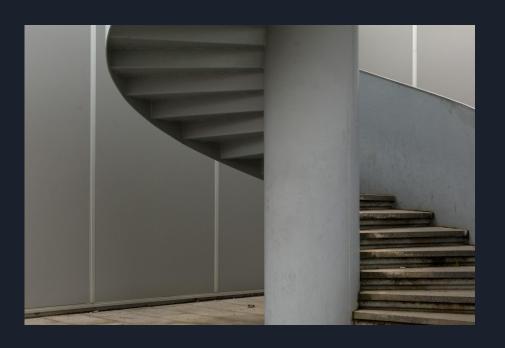
• Split Fruit into Subsets

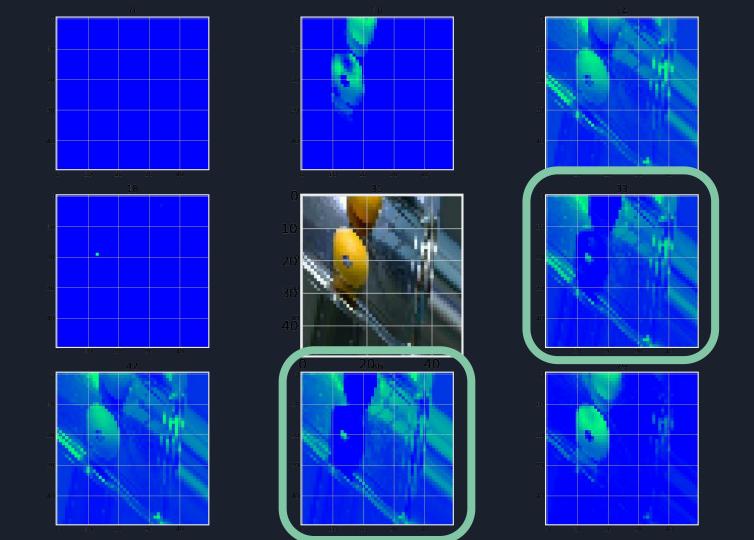


- Split Fruit into Subsets
- Run different:
  - Layers
  - Activation Alg's
  - Transformations

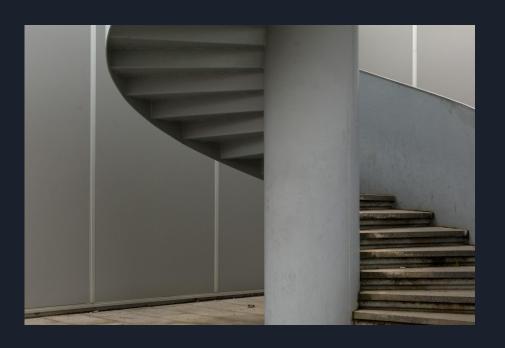


- Split Fruit into Subsets
- Run different:
  - Layers
  - Activation Alg's
  - Transformations
- Incorporate Other Images

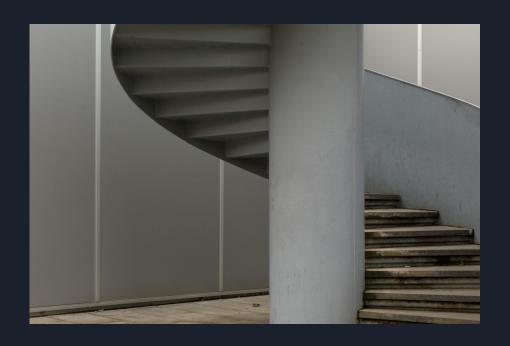




- Split Fruit into Subsets
- Run different:
  - Layers
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- Incorporate Other Images



- Split Fruit into Subsets
- Run different:
  - Layers
  - Activation Alg's
  - Transformations
- Incorporate Other Images
- Deploy Web App



# Thank You!

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