

# Fruit recognition from images using deep learning

Author: Horea Muresan, Mihai Oltean

Year: 2018

Conference/Journal: Acta Universitatis Sapientiae,  
Informatica

Mureșan, Horea, and Mihai Oltean. "Fruit Recognition from Images Using Deep Learning." Acta Universitatis Sapientiae, Informatica, vol. 10, 2018, pp. 26-42, doi:10.2478/ausi-2018-0002.

# Problem Statement

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- The main goal of this project is to develop a fruit recognition system using deep learning techniques.
- Some potential applications that this project can be used for is in agriculture, retail, and health industries.

# Dataset

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The project will utilize the Fruits-360 dataset, which contains images of multiple different fruits and vegetables.

Dataset properties:

- Total number of images: 90,483
- Number of classes: 131 (fruits and vegetables)
- Image size: 100x100 pixels

Here is a link to the Dataset in kaggle: <https://www.kaggle.com/moltean/fruits>

# Motivation

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The main motivation behind this project is to support deep learning techniques for more accurate fruit recognition, which can help when it comes to automating tasks in agriculture and retail, as well as promoting healthy eating habits through health and nutrition apps.

# Ripe Fruit Detection and Classification Using Machine Learning

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- **Authors:** Aaron Don M. Africa, Anna Rovia V. Tabalan, Michaela Angela A. Tan
- **Date:** May, 2020
- **Conference/Journal:** International Journal of Emerging Trends in Engineering Research
- This paper is important because it presents multiple different methods and approaches for ripe fruit detection and classification using machine learning algorithms. It talks about how computer applications can be used for more accurate evaluation of crops, which could help with my fruit recognition system

Africa, Aaron Don M., Anna Rovia V. Tabalan, and Michaela Angela A. Tan. "Ripe Fruit Detection and Classification Using Machine Learning." International Journal of Emerging Trends in Engineering Research, vol. 8, no. 5, May 2020, pp. 1845–1849. DOI: 10.30534/ijeter/2020/60852020.

# Convolutional Neural Networks (CNN) for Detecting Fruit Information Using Machine Learning Techniques

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- **Authors:** Fouzia Risdin, Pronab Kumar Mondal, Kazi Mahmudul Hassan
- **Date:** Mar, 2020
- **Conference/Journal:** IOSR Journal of Computer Engineering (IOSR-JCE)
- The reason I chose this paper is because it talks about the use of convolutional neural networks (CNN) for detecting fruit information. It also helps provides an understanding into the application of deep learning techniques for fruit detection and classification.

# Summary of the Method

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- **Paper:** Fruit recognition from images using deep learning by Horea Muresan and Mihai Oltean.
- **Problem:** The paper focuses on the recognizingation and classification of different types of fruits from images.
- **Method:** Convolutional neural networks (CNNs) are known for their ability to extract and learn features from images, making it perfect for image classification tasks.
- **Solution:** Train a CNN model on labeled fruit images to recognize and classify different fruits accurately.

Task	Start Date	End Date	Duration
Topic Refined	Feb 23	Feb 28	1 week
Dataset Preparation	Mar 1	Mar 7	1 week
Model Development	Mar 8	Mar 28	3 weeks
Progress Report 1	Mar 29	Mar 8	1 week
Model Training & Testing	Mar 9	Apr 4	4 weeks
Progress Report 2	Apr 5	Mar 22	1 week
Model Refinement	Apr 6	Apr 18	2 weeks
Progress Report 3	Apr 19	Apr 5	1 week
Final Report Writing	Apr 20	Apr 26	1 week
Presentation Preparation	Apr 27	Apr 19	1 week
Project Presentation	Apr 20	Apr 19	1 day
Final Report Submission	Apr 27	Apr 29	3 days



# Sources

1. Primary Paper:
  - a. Muresan, Horea, and Mihai Oltean. "Fruit recognition from images using deep learning." Acta Universitatis Sapientiae, Informatica 10.1 (2018): 26-42.
  - b. Link: <https://web.archive.org/web/20190430171405/https://content.sciendo.com/downloadpdf/journals/ausi/10/1/article-p26.pdf>
2. Reference Paper 1:
  - a. Africa, Aaron Don M., Anna Rovia V. Tabalan, and Mharela Angela A. Tan. "Ripe Fruit Detection and Classification Using Machine Learning." International Journal of Emerging Trends in Engineering Research, vol. 8, no. 5, May 2020, pp. 1845–1849. DOI: 10.30534/ijeter/2020/60852020.
  - b. Link: <https://www.warse.org/IJETER/static/pdf/file/ijeter60852020.pdf>
3. Reference Paper 2:
  - a. Risdin, Fouzia, Pronab Kumar Mondal, and Kazi Mahmudul Hassan. "Convolutional Neural Networks (CNN) for Detecting Fruit Information Using Machine Learning Techniques." IOSR Journal of Computer Engineering (IOSR-JCE), vol. 22, no. 2, Mar.-Apr. 2020, pp. 01-13. DOI: 10.9790/0661-2202010113.
  - b. Link: <https://www.iosrjournals.org/iosr-jce/papers/Vol22-issue2/Series-1/A2202010113.pdf>