**Estimation of Greenhouse Lettuce Growth Indices Based on a Two-Stage CNN Using RGB-D Images**

[Sensors | Free Full-Text | Estimation of Greenhouse Lettuce Growth Indices Based on a Two-Stage CNN Using RGB-D Images (mdpi.com)](https://www.mdpi.com/1424-8220/22/15/5499)

The stereo camera extracts height and RGB information, judges fresh weight, dry weight, height, diameter, and leaf area (growth index), and runs the developed CNN model to process lettuce images.

# Detection of abnormal hydroponic lettuce leaves based on image processing and machine learning

[Detection of abnormal hydroponic lettuce leaves based on image processing and machine learning - ScienceDirect](https://www.sciencedirect.com/science/article/pii/S2214317321000834)

Accurate and fast detection of abnormal hydroponic lettuce leaves（Yellow and rotten leaves）

Machine learning models, i.e. Multiple Linear Regression (MLR), K-Nearest Neighbor (KNN), and Support Vector Machine (SVM).

Reduce RGB, HSV, and L\*a\*b\* features number of hydroponic lettuce images.

Image binarization, image mask, and image filling methods

# Growth monitoring of greenhouse lettuce based on a convolutional neural network

# [Growth monitoring of greenhouse lettuce based on a convolutional neural network | Horticulture Research (nature.com)](https://www.nature.com/articles/s41438-020-00345-6)

Critical indicators to characterize the growth of greenhouse lettuce：aboveground biomass and leaf area (leaf fresh weight (LFW), leaf dry weight (LDW), and leaf area (LA)).

A CNN model was trained to learn the relationship between images and the corresponding growth-related traits

flat-type BETTER than curled-type！

# Detection of Lettuce Plant Conditions Based on Images using Backpropagation Method

[Detection of Lettuce Plant Conditions Based on Images using Backpropagation Method | IEEE Conference Publication | IEEE Xplore](https://ieeexplore.ieee.org/document/9990758)

Identify sound leaf condition class and leaf condition class with yellow tone and earthy colored spots.

HOG+ANN

# Detection of Defective Lettuce Seedlings Grown in an Indoor Environment under Different Lighting Conditions Using Deep Learning Algorithms

# [Sensors | Free Full-Text | Detection of Defective Lettuce Seedlings Grown in an Indoor Environment under Different Lighting Conditions Using Deep Learning Algorithms (mdpi.com)](https://www.mdpi.com/1424-8220/23/13/5790)

# A high-precision detection method of hydroponic lettuce seedlings status based on improved Faster RCNN

[A high-precision detection method of hydroponic lettuce seedlings status based on improved Faster RCNN - ScienceDirect](https://www.sciencedirect.com/science/article/abs/pii/S0168169921000727)