

Ideation Phase Literature Survey

Title : Application of Crop Model Data Assimilation With a Particle Filter for Estimating Regional Winter Wheat Yields

Author: [Zhiwei Jiang](#); [Zhongxin Chen](#); [Jin Chen](#); [Jia Liu](#); [Jiangqiang Ren](#); [Zongnan Li](#); [Liang Sun](#);

Date of Publication: 24 April 2014

Problem Statement

Crop yield information is required for sustainable agriculture management and it is critical that such data be determined on a regional scale in a timely and accurate manner

Techniques Used :

To address these problems associated with the EnKF algorithm, particle filters

Title : Crop Yield Prediction Using Machine Learning Algorithm

Author : [Ranjani J](#); [V.K.G Kalaiselvi](#); [A. Sheela](#); [Deepika Sree D](#);

Date of Conference: 16-17 December 2021

Problem Statement

Crop production is predicted using machine learning techniques based on parameters such as rainfall, crop, and meteorological conditions.

Techniques Used : Random Forest, can do both classification and regression tasks

Title : Analysis of NDVI Data for Crop Identification and Yield Estimation

Author : [Jing Huang](#); [Huimin Wang](#); [Qiang Dai](#); [Dawei Han](#)

Date of Publication: 05 August 2014

Problem Statement

Crop yield estimation is of great importance to food security. Normalized Difference Vegetation Index (NDVI), as an effective crop monitoring tool, However, there are few studies focusing on the aspect of mixed crops grown together

Techniques Used :

Machine Learning

Title : Estimation of Crop Yield From Combined Optical and SAR Imagery

Author : [Yeshanbele Alebele](#); [Wenhui Wang](#); [Weiguo Yu](#); [Xue Zhang](#); [Xia Yao](#); [Yongchao Tian](#); [Yan Zhu](#)

Date of Publication: 08 October 2021

Problem Statement

Rising global demand for agricultural production places growing pressure on agro-ecosystems and the food chain as a whole, generating a new scenario for agricultural policy and scientific study.

Techniques Used :

Using Gaussian Kernel Regression

Title : Agricultural Analysis and Crop Yield Prediction of Habiganj using Multispectral Bands of Satellite Imagery

Author : [Fariha Shahrin](#); [Labiba Zahin](#); [Ramisa Rahman](#);

Date of Conference: 17-19 December 2020

Problem Statement :

Uncertain crop yields and inefficient farming infrastructure causes adverse effect in food security. Habiganj is selected as the study area because of its vulnerability to floods and drought due to its unique terrain.

Techniques Used :

Machine Learning

Title : A Comprehensive Review of Crop Yield Prediction Using Machine Learning Approaches With Special Emphasis on Palm Oil Yield Prediction

Author : [Mamunur Rashid](#); [Bifta Sama Bari](#); [Yusri Yusup](#);

Date of Publication: 22 April 2021

Problem Statement

An early and reliable estimation of crop yield is essential in quantitative and financial evaluation at the field level for determining strategic plans in agricultural commodities for import-export policies and doubling farmer's incomes.

Techniques Used :

Machine Learning

Title : Towards Paddy Rice Smart Farming

Author : [Rayner Alfred](#); [Joe Henry Obit](#); [Christie Pei-Yee Chin](#); [Haviluddin Haviluddin](#)

Date of Publication: 29 March 2021

Problem Statement

The increasing amount and variety of data captured and obtained by these emerging technologies in IoT offer the rice smart farming strategy new abilities to predict changes and identify opportunities.

Techniques Used : Big Data (BD), Machine Learning (ML) and Internet of Things (IoT)

Title : Estimating Soil Moisture Over Winter Wheat Fields During Growing Season

Author : [Lin Chen](#); [Minfeng Xing](#); [Binbin He](#); [Jinfei Wang](#); [Jiali Shang](#)

Date of Publication: 23 March 2021

Problem Statement

Soil moisture is vital for the crop growth and directly affects the crop yield. The conventional synthetic aperture radar (SAR) based soil moisture monitoring is often influenced by vegetation cover and surface roughness.

Techniques Used :

Machine Learning

Title : County-Level Corn Yield Estimation in the U.S. Corn Belt

Author : [Jie Sun](#); [Zulong Lai](#); [Liping Di](#); [Ziheng Sun](#); [Jianbin Tao](#); [Yonglin Shen](#)

Date of Publication: 25 August 2020

Problem Statement

Remote sensing is an efficient method for yield estimation .There are some bottleneck challenges to improve accuracy. First, the popular remote sensing data used for yield prediction fall into two major groups-time-series data and constant data. Surprisingly little attention has been devoted to deep learning

Techniques Used :

Multilevel Deep Learning Network

Title : Crop Type Identification and Mapping Using Machine Learning Algorithms and Sentinel-2 Time Series Data

Author : [Siwen Feng](#); [Jianjun Zhao](#); [Tingting Liu](#); [Hongyan Zhang](#); [Zhengxiang Zhang](#);

Date of Publication: 02 July 2019

Problem Statement

In the multiclassification problem, the machine learning methods have robustness with the identification accuracy of greater than 95% for each crop type, whereas the traditional classification result shows imbalanced accuracies for different crops.

Techniques Used :

Machine Learning