

Front page of conference proceeding of “Role of Digitalization in The Economic Development of Punjab”

Seminar Proceedings
of
ICSSR Sponsored National Seminar
On
**ROLE OF DIGITALIZATION IN THE ECONOMIC
DEVELOPMENT OF PUNJAB WITH SPECIAL
REFERENCE TO AGRICULTURE**
Saturday, 14 May, 2022
Organised by
Department of Economics



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ISBN: 978-81-958221-1-9

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Published by
K.G. Graphics
Booth #8 FF, GNDU Shopping Complex,
G.T. Road, Amritsar, (M) 9888324402

Printed at
M.S. Printers, Ram Tirath Road, Amritsar

Price : Rs. 400/-

First page of paper “Improving agriculture yield by plant leaves disease detection in early stage using Bio Inspired Fuzzy tuned Machine Learning technique

Improving agriculture yield by plant leaves disease detection in early stage using Bio Inspired Fuzzy tuned Machine Learning technique

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ABSTRACT

Agriculture is considered as the backbone of Indian economy. Due to several changes in climatic conditions and industrial technologies, several modern approaches have emerged and are followed for increasing the production of agricultural commodities. Much research have been conducted in this field in the past so as to identify suitable innovations that are effective and accurate. Precision Agriculture (PA) is one of the techniques which aims at improving the farm production by using techniques such as pest identification and control, weed detection, plant disease detection etc. These techniques enable easy detection of the issues and support quicker action against the abnormalities. The common abnormalities include development of anomalous leaf, distortion of shape and color, presence of harmed units and hindered development. Infections can be found in various parts of the plants such as leaf, stem etc. and are to be dealt using appropriate techniques. Due to the rapid advancements in machine learning (ML) and deep learning (DL) techniques in the recent times, ML / DL based solutions are mostly sought for many real world problems and are applied in various fields. These advancements have contributed a lot towards development of efficient models to support yield of agricultural crops and the same are being experimented in the research of plant disease detection as well. There are many machine learning algorithms such as Random Forest, Support Vector Machines etc. and we can apply deep learning strategies such as Inception-V3, VGG-16, VGG-19 and can detect the plant disease. Using such deep learning techniques, when a new image is given, the system predicts the disease type with which the plant is currently affected and renders support to initiate suitable action before the disease progresses to the other part of the plant and cause severe damage. The major