



Springer



IEM ICDC 2026

4th International Conference on Computational Intelligence, Data Science and
Cloud Computing

Organized by
Department of Information Technology & Department of Computer Science & Engineering
Institute of Engineering & Management, Kolkata, India

March 16-18, 2026

Kolkata

[Register Now](#)[Submit Paper](#)

NOW AVAILABLE

Conference Schedule – March 16–18, 2026



NOW AVAILABLE

PPT Template



Welcome to IEM ICDC 2026



Science and Cloud Computing is an endeavour mentioning interest for Computational Intelligence and Data Science applications in diverse domains. As the world is moving towards industry 4.0, Computational Intelligence, Data Science and Cloud Computing are becoming more and more relevant in our society in all possible ways.

The most substantial new findings about AI and Robotics, Image processing and NLP, Cloud Computing and big data analytics as well as in Cyber security, Blockchain and IoT and various allied fields will be presented in the three-day event comprised of insightful invited talks, innovative technical sessions and informative workshops.

The general chair, the convener, along with the entire team invite researchers and industry personnel around the world to take part in the upcoming event to make the event a grand success.

Qualitative Analysis on Deep Learning Architectures for In-Field Sugarcane Disease Detection

Indranil Maity¹[0000-0002-4919-3072], Prawesh Sharma²[0009-0005-0017-5518], Soumalya Maiti²[1111-2222-3333-4444], Sudip Samanta²[0009-0002-2565-9007], and Malay Gangopadhyay¹[0009-0005-3250-8209]

¹ Department of Electronics and Communication Engineering, Institute of Engineering and Management, University of Engineering and Management, Kolkata, India

² Department of Electronics and Communication Engineering, Institute of Engineering and Management, Kolkata, India
indrasanu026@gmail.com

Abstract. Early identification of leaf disease is essential for sustaining crop yield and protecting global agricultural productivity. Conventional inspection is often ineffective, time-consuming, and liable to human error, particularly when diseases are followed by similar visual symptoms. This study mainly compares three deep learning models- ResNet50, EfficientNetV2-S, and ConvNeXt-Tiny, to evaluate their efficiency in automated detection of disease in sugarcane leaves. Self-acquired images captured with smartphones and field-based datasets are used, along with a transfer learning framework with a two-phase fine-tuning process. It succeeded in accomplishing robustness through class-based sampling and targeted data augmentation to side-step overfitting. Precision, recall, F1-score, and overall accuracy were used to evaluate models' performance. The results show that EfficientNetV2-S outclasses other models, achieving an accuracy of 99.47%. Collectively, the results support the robustness of the models and the potential for real-time precision agriculture to mitigate early diseases.

Keywords: Deep Learning, ResNet50, EfficientNetV2-S, Agriculture Application, Sugarcane Leaf, Plant Disease Classification.

1 Introduction

Agriculture, the most important segment of developing and industrialized states, plays a key role in employment, food production, and the supply of raw material to various industries. Among global crops, sugarcane is mostly notable for its economic value in both sugar and bioethanol production. Yet, the sugarcane plant is susceptible to a variety of leaf diseases such as mosaic, red rot, rust, and yellowing, which considerably decrease yield and negatively impact overall productivity.

Most conventional disease diagnosis methods rely on either the farmer's or agricultural expert's visual observation, which is time-consuming and often error-prone, as most diseases have similar visual appearances across plant species [1]. Traditional approaches grounded in expert visual examination are often labor-intensive and, particularly, not capable of large-scale monitoring. The use of AI and DL has gained considerable interest in overcoming some of the aforementioned challenges because these techniques can autonomously understand complex visual features from the images of leaves without requiring explicit extraction of features by hand [2][3]. In this respect,

17. C. P. Vijay and K. Pushpalatha, "DV-PSO-Net: A novel deep mutual learning model with Heuristic search using Particle Swarm optimization for Mango leaf disease detection," *Journal of Integrated Science and Technology*, vol. 12, no. 5, May 2024.
18. D. A. Nggego, M. Hasbi, and N. Patawaran, "Data augmentation and transfer learning efficientnetv2-s on rice leaf disease classification," *IOP Conference Series Earth and Environmental Science*, vol. 1454, no. 1, p. 012001, Feb. 2025.
19. P. Yashaswini, S. Bhavani, N. Yamuna, P. A. Kumar, and M. A. Kiran, "Paddy Leaf Disease Detection Using Fine-tuned ConvNext-Tiny Model," *2025 5th International Conference on Intelligent Technologies (CONIT)*, pp. 1–7, Jun. 2025.

4TH INTERNATIONAL CONFERENCE ON COMPUTATIONAL INTELLIGENCE, DATA SCIENCE AND CLOUD COMPUTING

KOLKATA, INDIA, 16 - 18, MARCH 2026

Organized by: Institute of Engineering & Management, Kolkata, India

CERTIFICATE OF PUBLICATION

This is to certify that

Indranil Maity, Prawesh Sharma, Soumalya Maiti,
Sudip Samanta and Malay Gangopadhyay

are the authors of the paper titled

Qualitative Analysis on Deep Learning Architectures for In-Field
Sugarcane Disease Detection



Dr. Moutushi Singh
GENERAL CHAIR



Dr. Baisakhi Das
GENERAL CHAIR



Dr. Sanchita Ghosh
GENERAL CHAIR



IEM - ICDC 2026  Springer



4TH INTERNATIONAL CONFERENCE ON
COMPUTATIONAL INTELLIGENCE, DATA SCIENCE AND CLOUD COMPUTING

KOLKATA, INDIA, 16 - 18, MARCH 2026

Organized by: Institute of Engineering & Management, Kolkata, India

CERTIFICATE OF PRESENTATION

THIS IS TO CERTIFY THAT

Soumalya Maiti

HAS PARTICIPATED IN 'IEM-ICDC 2026' AND PRESENTED A PAPER TITLED
Qualitative Analysis on Deep Learning Architectures for In-Field Sugarcane Disease
Detection

Moutushi Singh

Dr. Moutushi Singh
GENERAL CHAIR

Baisakhi Das

Dr. Baisakhi Das
GENERAL CHAIR

S. Ghosh

Dr. Sanchita Ghosh
GENERAL CHAIR



IEM - ICDC 2026



4TH INTERNATIONAL CONFERENCE ON COMPUTATIONAL INTELLIGENCE, DATA SCIENCE AND CLOUD COMPUTING

KOLKATA, INDIA, 16 - 18, MARCH 2026

Organized by: Institute of Engineering & Management, Kolkata, India

CERTIFICATE OF PUBLICATION

This is to certify that

Indranil Maity, Prawesh Sharma, Soumalya Maiti,
Sudip Samanta and Malay Gangopadhyay

are the authors of the paper titled

Qualitative Analysis on Deep Learning Architectures for In-Field
Sugarcane Disease Detection

Moutushi Singh

Dr. Moutushi Singh
GENERAL CHAIR

Baisakhi Das

Dr. Baisakhi Das
GENERAL CHAIR

S. Ghosh

Dr. Sanchita Ghosh
GENERAL CHAIR



Ankit Biswas <ankitbiswas594@gmail.com>

Fwd: IEM-ICDC 2026 notification for paper 239

1 message

Soumalya Maiti <soumalyamaiti18@gmail.com>
To: Ankit Biswas <ankitbiswas594@gmail.com>

Mon, Apr 27, 2026 at 8:45 PM

----- Forwarded message -----

From: **IEM-ICDC 2026** <iemicdc2026@easychair.org>
Date: Tue, 17 Feb 2026 at 10:34
Subject: IEM-ICDC 2026 notification for paper 239
To: Soumalya Maiti <soumalyamaiti18@gmail.com>

Dear Soumalya Maiti,

Greetings from IEM-ICDC2026.

The review process for the 4th International Conference on Computational Intelligence, Data Science and Cloud Computing (IEM-ICDC 2026), for the paper 239 has been completed. Based on the recommendations of the reviewers and the Technical Program Committee, I am pleased to inform you that your paper has been accepted for oral presentation at IEM-ICDC 2026.

You are cordially invited for ORAL PRESENTATION of the paper at IEM-ICDC 2026 to be held between March 16- 18, 2026, at Software Technology Park of India (STPI), Kolkata, West Bengal, India.

This notification email serves as our formal acceptance of your paper as well as an invitation to present your work at IEM-ICDC 2026.

The acceptance of your paper is subject to the understanding that one author will register and attend the Conference to present the paper.

If multiple authors want to attend the conference, they need to register under the Participant category, paying a separate participant fee.

The link for author registration: <https://forms.office.com/r/kTHwyVscZ1>

The link for participants' registration: <https://forms.office.com/r/hRVRY1Ywpg>

The Registration with payment must be received by today, 17th February 2026. After making payment, you have to fill out the registration form.

In order for your paper to be included in the conference proceedings, we require that:

Your Final Manuscript must be prepared using the Springer template.

Link: <https://www.springer.com/gp/authors-editors/conference-proceedings/conference-proceedings-guidelines>

You are also requested to send the camera-ready paper incorporating the feedbacks of the reviewers and proof of payment in a single zip file, with the subject line mentioning the paper ID, to icdc@iem.edu.in by 20th February 2026.

If the above requirements are not met by the set deadlines, the paper will not be published in the conference proceedings.

For the most updated information on the conference, please check the conference website: <https://iemicdc.org>

I would like to take this opportunity to thank you for choosing IEM-ICDC 2026 to present your research results.

I look forward to seeing you at IEM-ICDC 2026.

Yours sincerely,
Baisakhi Das
General Chair, IEM-ICDC 2026

SUBMISSION: 239

TITLE: Qualitative Analysis on Deep Learning Architectures for In-Field Sugarcane Disease Detection

----- REVIEW 1 -----

SUBMISSION: 239

TITLE: Qualitative Analysis on Deep Learning Architectures for In-Field Sugarcane Disease Detection

----- Overall evaluation -----

SCORE:

----- TEXT:

The paper is well-written, detailed and structured.

----- REVIEW 2 -----

SUBMISSION: 239

TITLE: Qualitative Analysis on Deep Learning Architectures for In-Field Sugarcane Disease Detection

----- Overall evaluation -----

SCORE:

----- TEXT:

The authors have a good initiative toward the research and development of agriculture.

The background study is taken very carefully and systematically.

The authors need to add a statistical test to signify the result of the work.

----- REVIEW 3 -----

SUBMISSION: 239

TITLE: Qualitative Analysis on Deep Learning Architectures for In-Field Sugarcane Disease Detection

----- Overall evaluation -----

SCORE:

----- TEXT:

However, improvements in presentation quality, reproducibility, security analysis, and experimental depth are required before publication. With these revisions, the manuscript has good potential for acceptance.

With improvements in validation rigor, presentation quality, and deeper analysis, the manuscript would be suitable for publication.