Review of: "Enhancing Cocoa Crop Resilience in Ghana: The Application of Convolutional Neural Networks for Early Detection of Disease and Pest Infestations"

Bishwa Sapkota

Potential competing interests: No potential competing interests to declare.

The authors provide a review of the prospects of AI for cocoa farming in Ghana. The review is well-written in terms of sentence structure and grammatical accuracy. However, it needs a moderate revision as suggested below.

Introduction

- A few sentences on what AI and CNNs are in this section would be very helpful for readers.
- I see a few sentences redundant, providing the same info. It would be great if the authors could give a thorough read, identify such sentences, and rephrase/eliminate them.

Literature Review

- Paragraph 3, last sentence: It would be nice if the authors provided more citations to support this argument.
- I think this section can be just an extension of the Introduction Section, since the Results section also talks about the literature review.

Method

- It would be great if the authors could add ‘keywords’ that they used to search literature in databases.

Results

- Section 4.1, paragraph 2, fourth sentence: It would be nice if authors quickly mentioned other popular activation functions (e.g., sigmoid, tanh, etc.) and gradually brought up the discussion about ReLU.
- Section 4.2. Data Collection ….. The authors should talk briefly about the different image datasets (multispectral, RGB). Which image datasets are more popular for this endeavor? Cite literature talking about it. Also, the authors should talk about the different image acquisition processes. For example, do researchers take images in standardized illumination, how image resolution is accounted for to meet the objectives, etc.
- Section 4.3. Real-time detection: I think the whole idea of using AI to detect pests is not only to allow the farmer to know about the pest status at the plant level but also to enable a farmer to visualize such pest occurrences over the farmer’s field. This visualization can lead to the precision treatment of such occurrences, saving time and money. The

author should talk more on how a trained CNN model can be integrated with remote sensing-based imagery to provide such visualizations.

Challenges and Future Directions

One of the future directions could also be the use of Unmanned Aerial Systems to perform spot insecticide applications following CNN-based pest detection across the field.