Korespondensi Paper

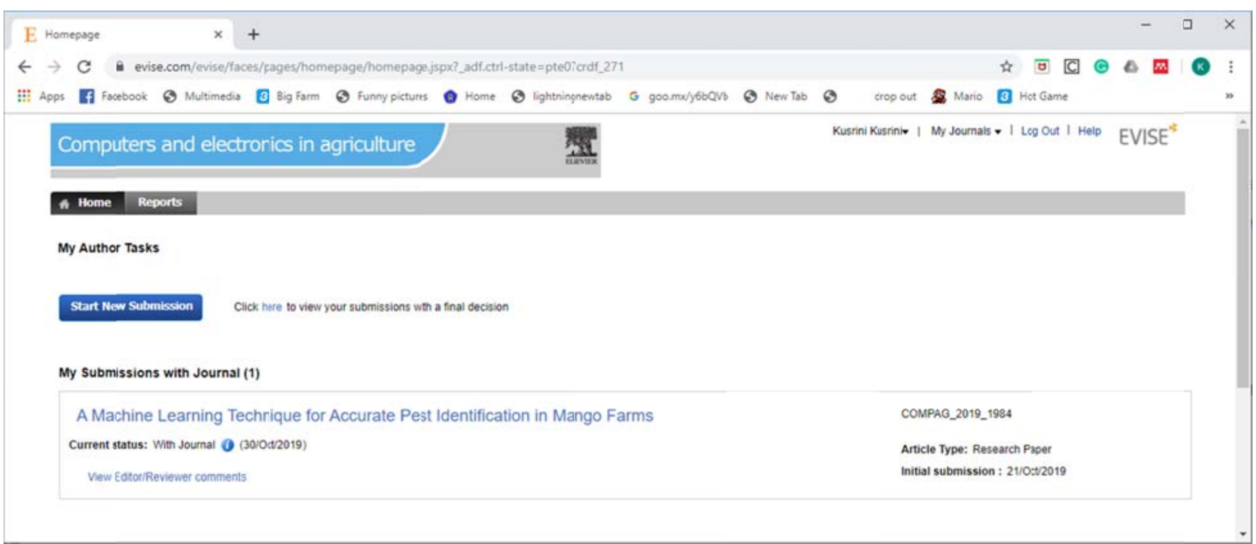
Judul : Data augmentation for automated pest classification in Mango farms
Penulis : Kusrini Kusrini, Suputa Suputa, Arief Setyanto, I Made Artha Agastya, Herlambang Priantoro, Krishna Chandramouli, Ebroul Izquierdo
Jurnal : Computers and Electronics in Agriculture ISSN: 0168-1699
Penerbit : Elsevier
Web Jurnal : https://www.sciencedirect.com/journal/computers-and-electronics-in-agriculture
Web Paper : https://www.sciencedirect.com/science/article/pii/S0168169919320800?via%3Dihub
DOI : https://doi.org/10.1016/j.compag.2020.105842
Index : Scopus Q1, Web Of Science
SJR : 1.058

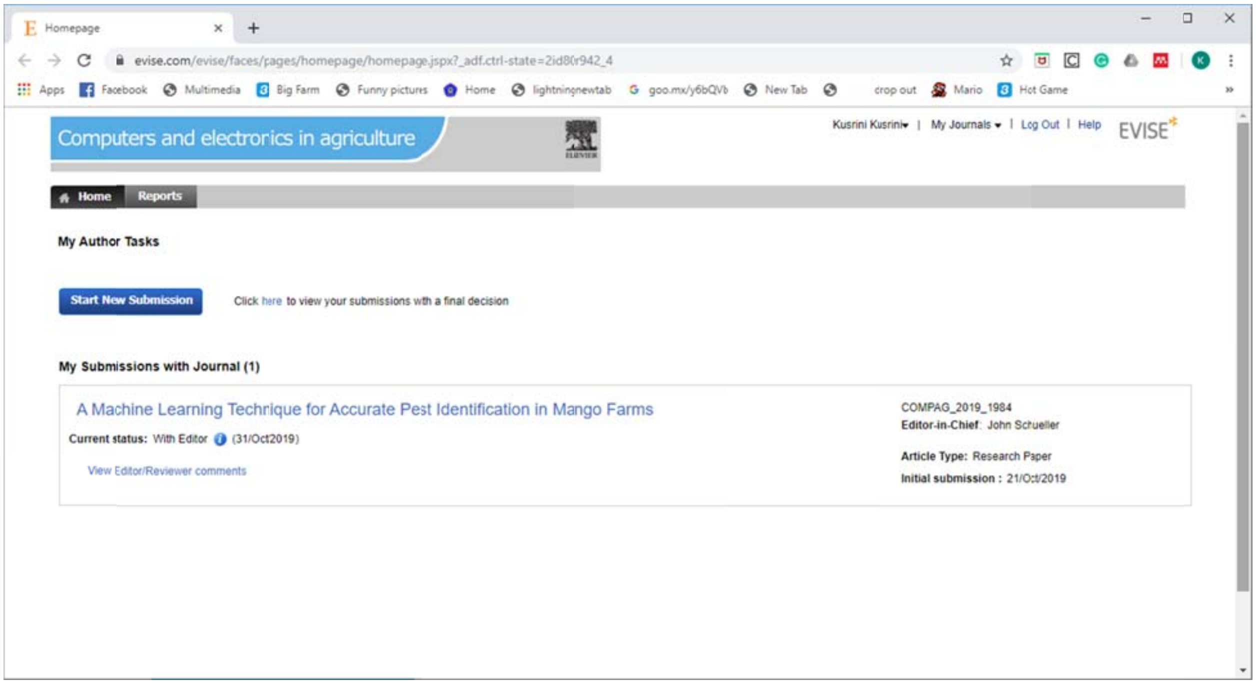
Sumber : https://www.scimagojr.com/journalsearch.php?q=30441&tip=sid&clean=0

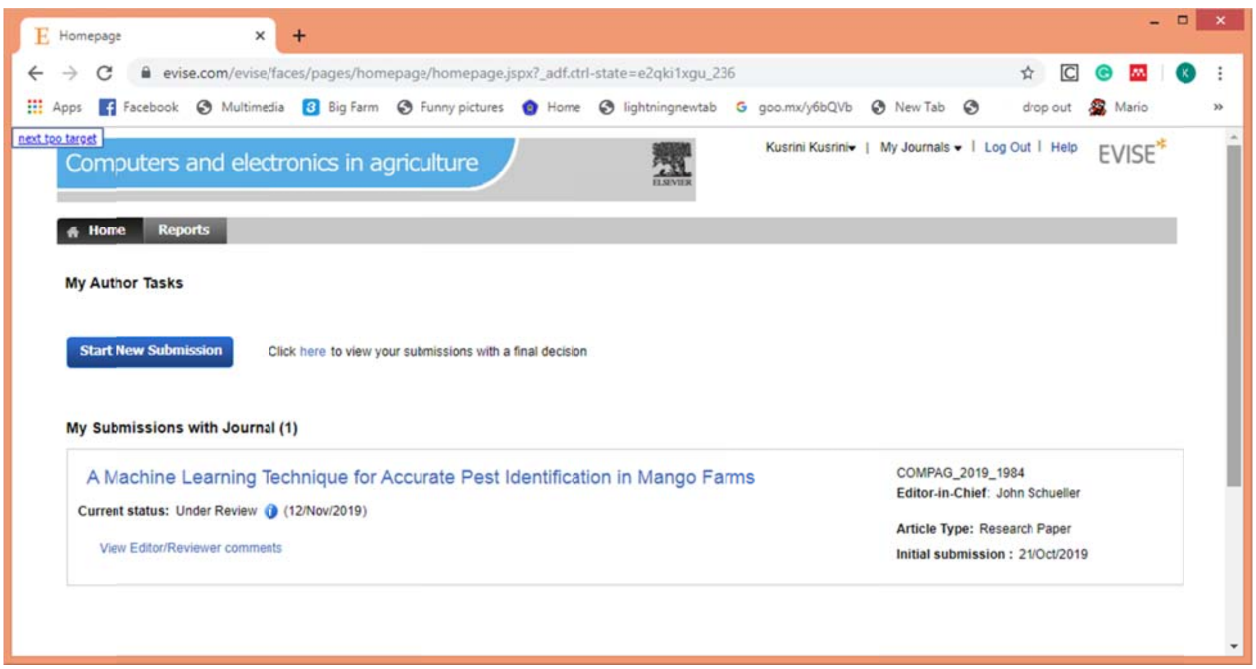
Progress:

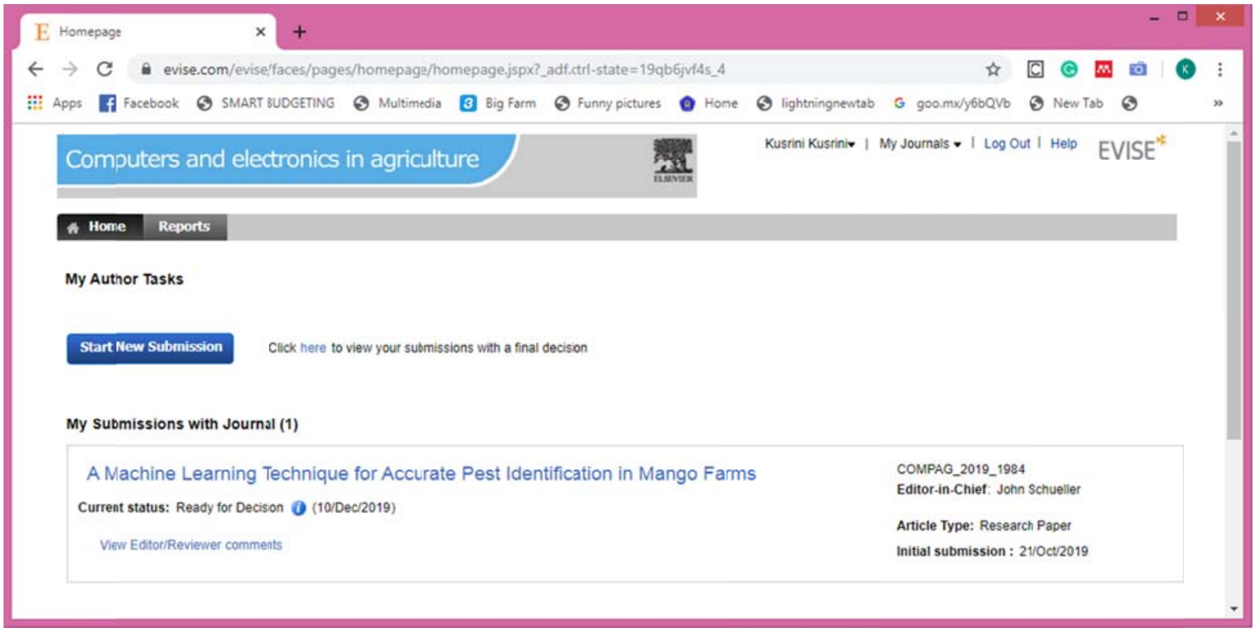
Tanggal	Progress
21-Okt-2019	Paper Submission
31-Okt-2019	With Editor
12-Nov-2019	Under Review
10-Des-2019	Ready for Decision
5-Jan-2020	Revision Requested
28-Jan-2020	Submit Revision
27-Feb-2020	With Journal
28-Feb-2020	With Editor
26-Mar-2020	Under Review
3-May-2020	Ready for Decision
13-May-2020	Revision Requested
2-Jul-2020	Under Review
5-Sep-2020	Revision Requested
2-Okt-2020	With Editor
15-Okt-2020	Accepted
16-Okt-2020	Proofread
22-Okt-2020	Production
Des-2020	Published online

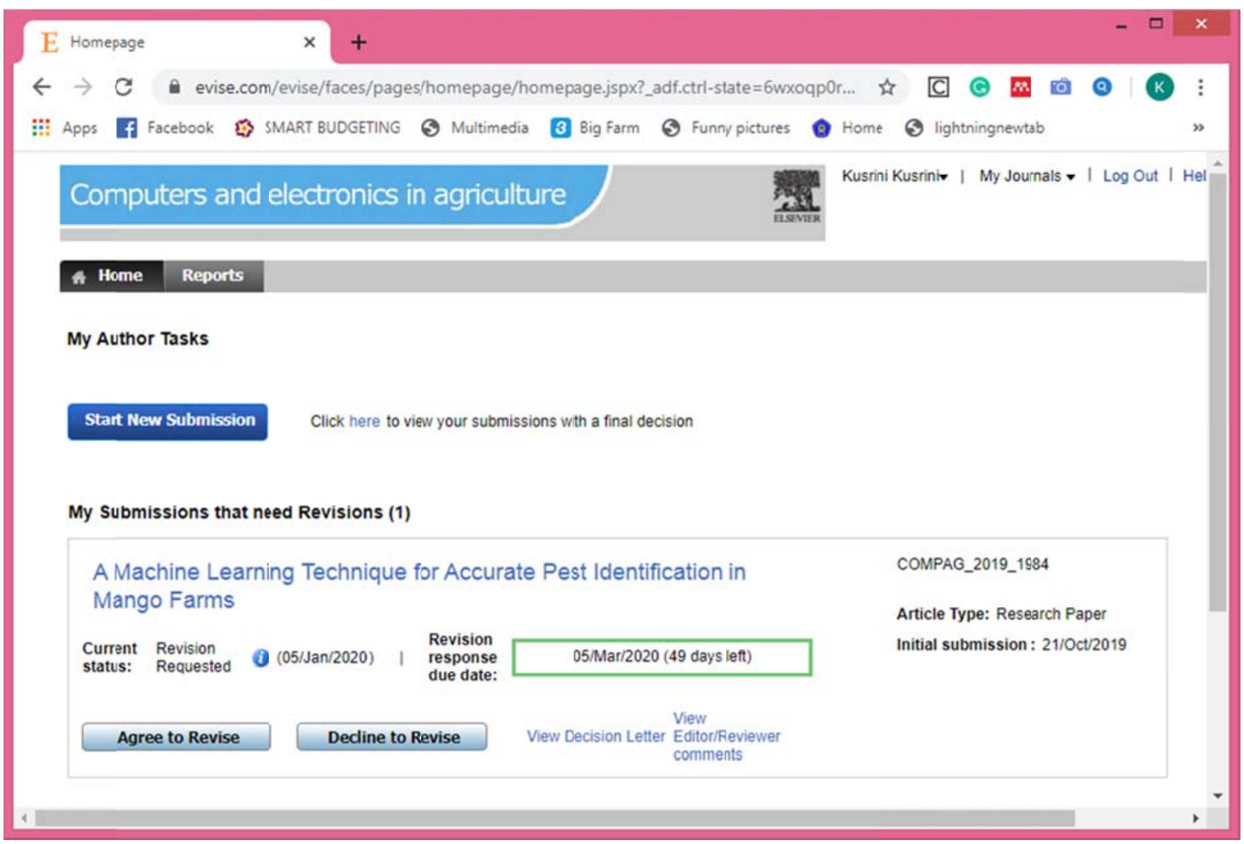
Halaman Submision:



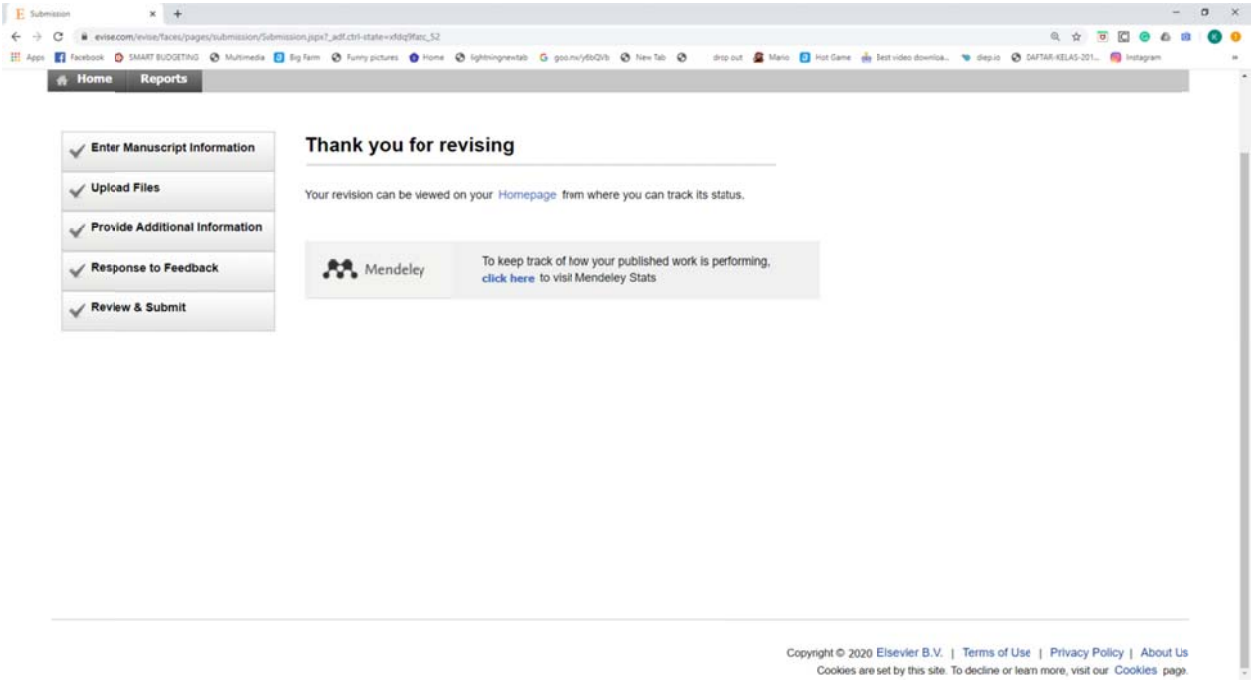

Homepage
evise.com/evise/faces/pages/homepage/homepage.jspx?_adf.ctrl-state=2id80r942_4
Apps Facebook Multimedia Big Farm Funny pictures Home lightningnewtab goo.mx/y6bQVb New Tab drop out Mario Hot Game
Computers and electronics in agriculture
Kusrini Kusrini | My Journals | Log Out | Help
EVISE
Home
Reports
My Author Tasks
Start New Submission
Click here to view your submissions with a final decision
My Submissions with Journal (1)
A Machine Learning Technique for Accurate Pest Identification in Mango Farms
Current status: With Editor (31/Oct2019)
View Editor/Reviewer comments
COMPAG_2019_1984
Editor-in-Chief: John Schueller
Article Type: Research Paper
Initial submission : 21/Oct/2019

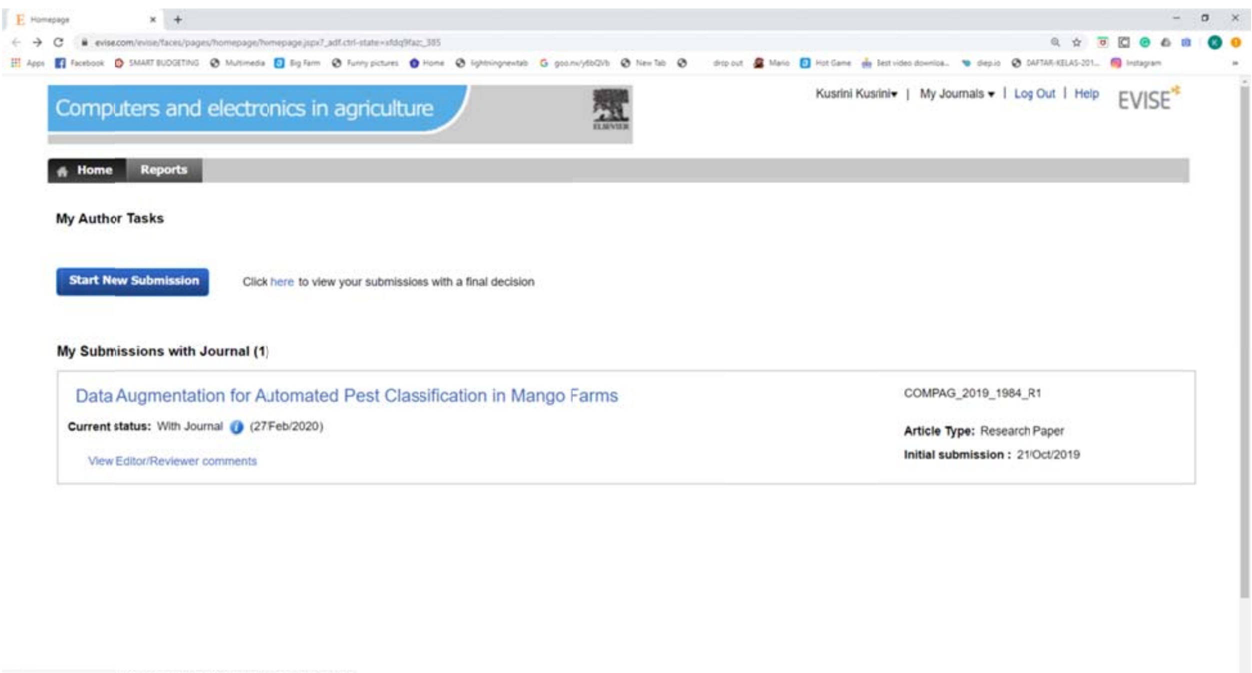

Homepage
evise.com/evise/faces/pages/homepage/homepage.jspx?_adf.ctrl-state=e2qki1xgu_236
Apps Facebook Multimedia Big Farm Funny pictures Home lightningnewtab goo.mx/y6bQVb New Tab drop out Mario
next tpo target
Computers and electronics in agriculture
Kusrini Kusrini | My Journals | Log Out | Help
EVISE
Home
Reports
My Author Tasks
Start New Submission
Click here to view your submissions with a final decision
My Submissions with Journal (1)
A Machine Learning Technique for Accurate Pest Identification in Mango Farms
Current status: Under Review (12/Nov/2019)
View Editor/Reviewer comments
COMPAG_2019_1984
Editor-in-Chief: John Schueller
Article Type: Research Paper
Initial submission : 21/Oct/2019

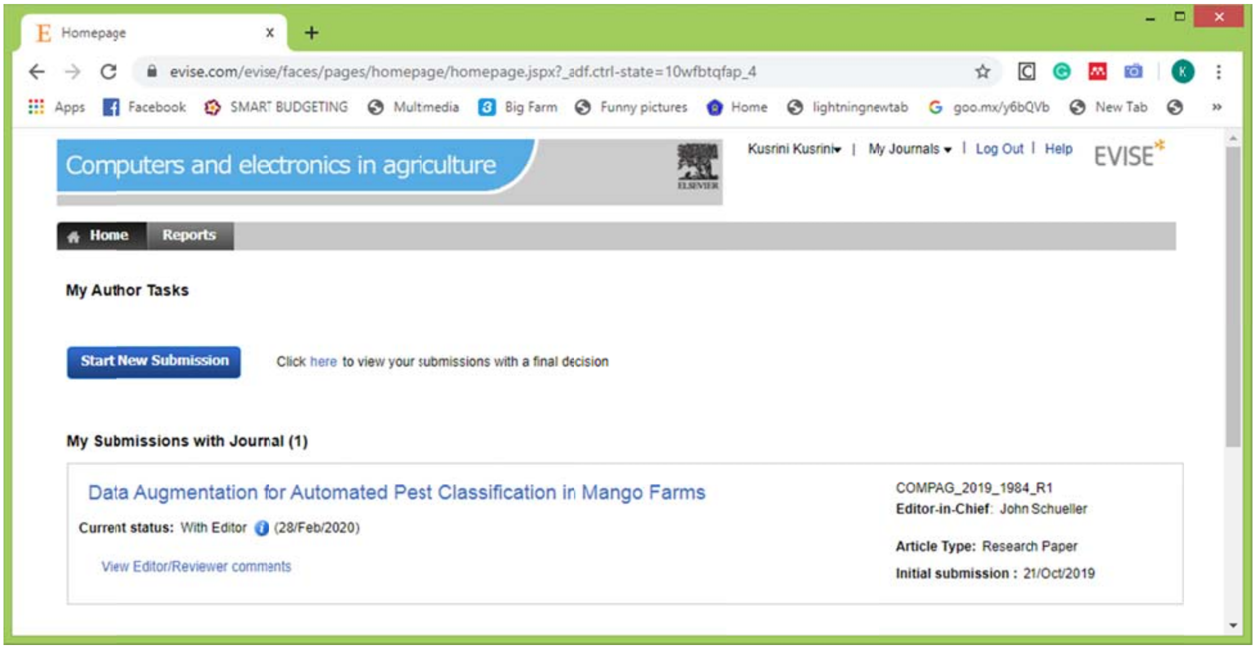

Homepage
evise.com/evise/faces/pages/homepage/homepage.jspx?_adf.ctrl-state=19qb6jvf4s_4
Apps
Facebook
SMART BUDGETING
Multimedia
Big Farm
Funny pictures
Home
lightningnewtab
goo.mx/y6bQVb
New Tab
Computers and electronics in agriculture
Kusrini Kusrini
My Journals
Log Out
Help
EVISE
Home
Reports
My Author Tasks
Start New Submission
Click here to view your submissions with a final decision
My Submissions with Journal (1)
A Machine Learning Technique for Accurate Pest Identification in Mango Farms
Current status: Ready for Decison (10/Dec/2019)
View Editor/Reviewer comments
COMPAG_2019_1984
Editor-in-Chief: John Schueller
Article Type: Research Paper
Initial submission : 21/Oct/2019

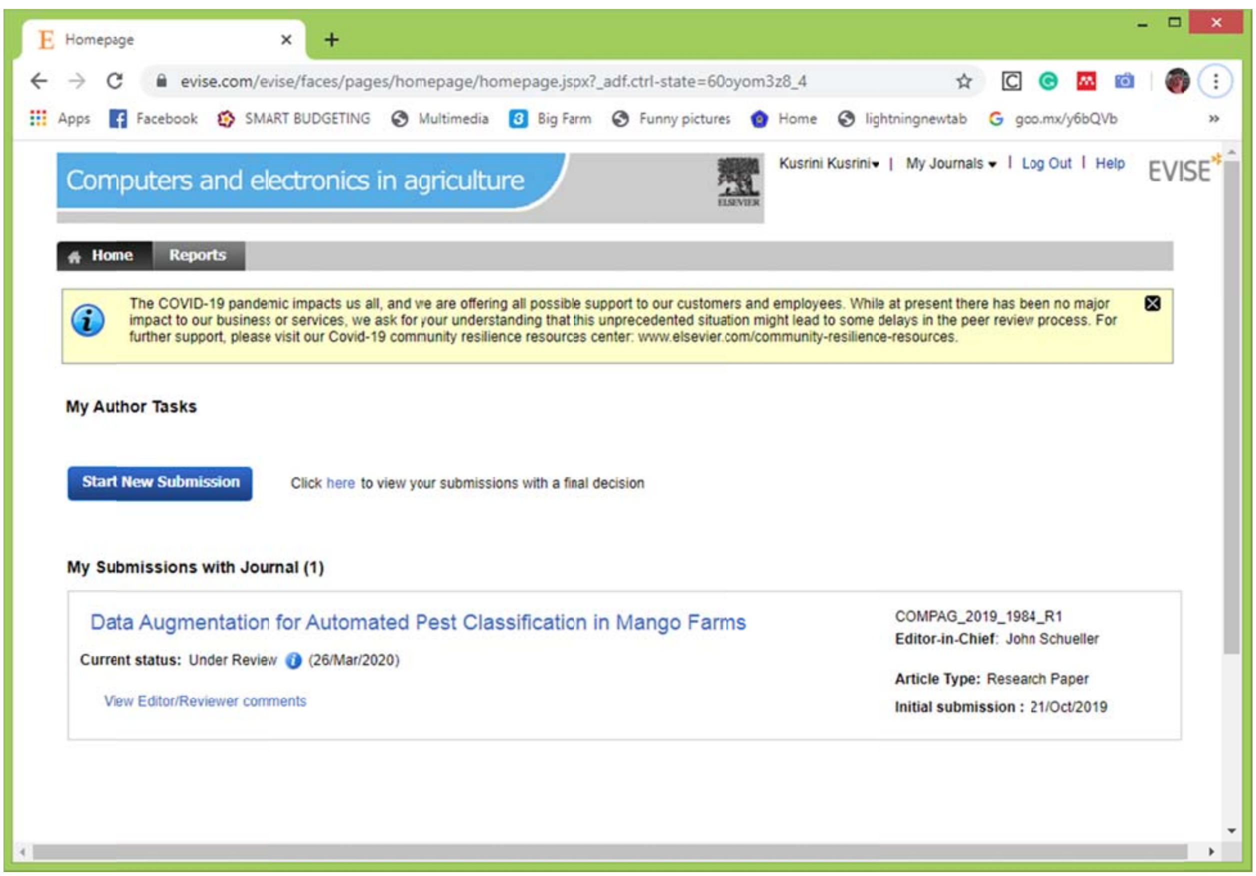

Homepage
evise.com/evise/faces/pages/homepage/homepage.jspx?_adf.ctrl-state=6wxoqp0r...
Apps
Facebook
SMART BUDGETING
Multimedia
Big Farm
Funny pictures
Home
lightningnewtab
Computers and electronics in agriculture
Kusrini Kusrini
My Journals
Log Out
Hel
Home
Reports
My Author Tasks
Start New Submission
Click here to view your submissions with a final decision
My Submissions that need Revisions (1)
A Machine Learning Technique for Accurate Pest Identification in Mango Farms
Current status: Revision Requested (05/Jan/2020)
Revision response due date:
05/Mar/2020 (49 days left)
COMPAG_2019_1984
Article Type: Research Paper
Initial submission : 21/Oct/2019
Agree to Revise
Decline to Revise
View Decision Letter
View Editor/Reviewer comments

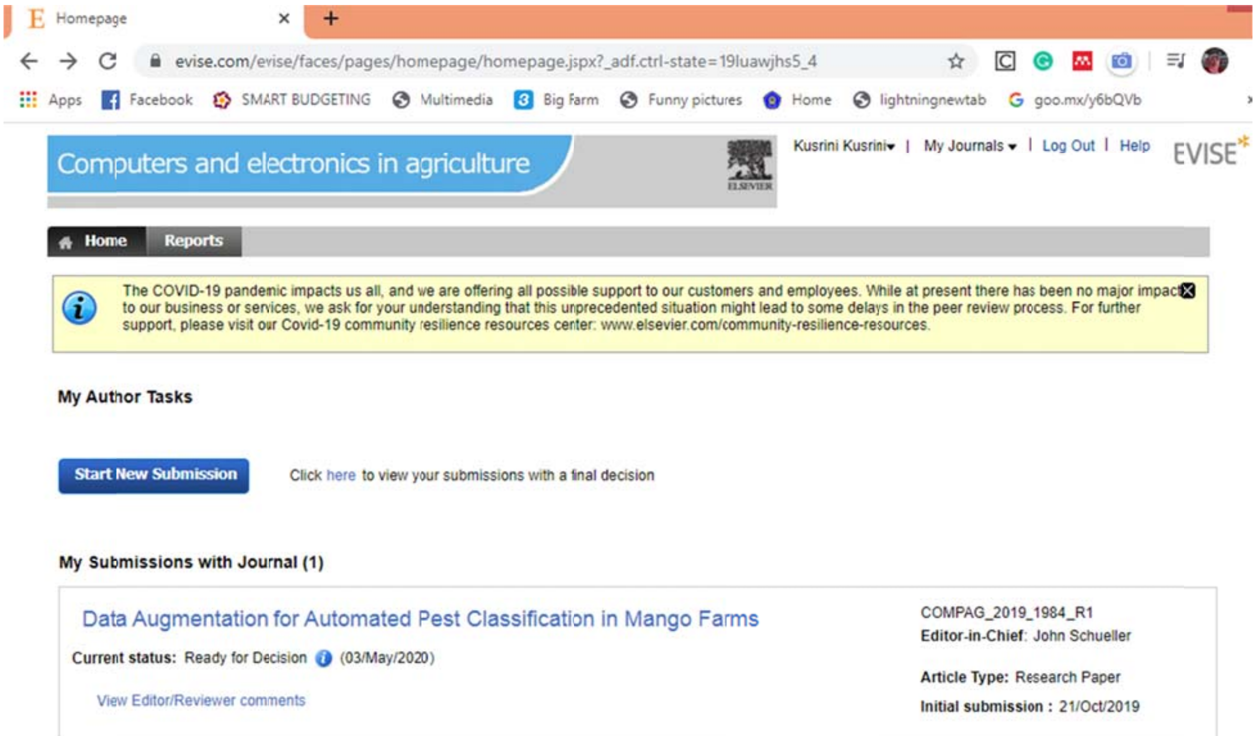
28 Feb 2020

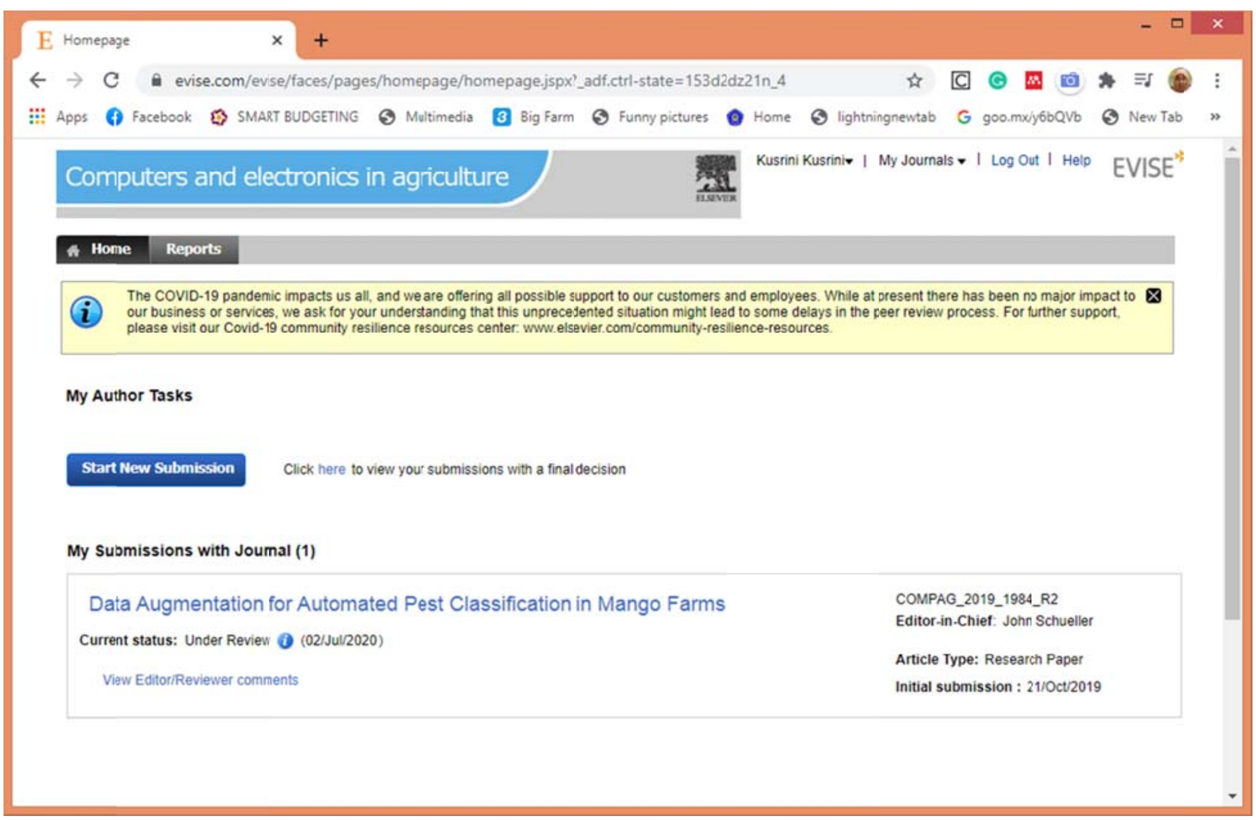

Home
Reports
Enter Manuscript Information
Upload Files
Provide Additional Information
Response to Feedback
Review & Submit
Thank you for revising
Your revision can be viewed on your Homepage from where you can track its status.
Mendeley
To keep track of how your published work is performing, click here to visit Mendeley Stats
Copyright © 2020 Elsevier B.V. | Terms of Use | Privacy Policy | About Us
Cookies are set by this site. To decline or learn more, visit our Cookies page.


Computers and electronics in agriculture
Kusrini Kusrini | My Journals | Log Out | Help
EVISE
Home
Reports
My Author Tasks
Start New Submission
Click here to view your submissions with a final decision
My Submissions with Journal (1)
Data Augmentation for Automated Pest Classification in Mango Farms
COMPAG_2019_1984_R1
Current status: With Journal (27/Feb/2020)
Article Type: Research Paper
Initial submission : 21/Oct/2019
View Editor/Reviewer comments


Homepage
evise.com/evise/faces/pages/homepage/homepage.jspx?_adf.ctrl-state=10wfbtqfap_4
Apps Facebook SMART BUDGETING Multimedia Big Farm Funny pictures Home lightningnewtab goo.mx/y6bQVb New Tab
Computers and electronics in agriculture
Kusrini Kusrini | My Journals | Log Out | Help
EVISE
Home Reports
My Author Tasks
Start New Submission
Click here to view your submissions with a final decision
My Submissions with Journal (1)
Data Augmentation for Automated Pest Classification in Mango Farms
Current status: With Editor (28/Feb/2020)
View Editor/Reviewer comments
COMPAG_2019_1984_R1
Editor-in-Chief: John Schueller
Article Type: Research Paper
Initial submission : 21/Oct/2019


Homepage
evise.com/evise/faces/pages/homepage/homepage.jspx?_adf.ctrl-state=60oyom3z8_4
Apps Facebook SMART BUDGETING Multimedia Big Farm Funny pictures Home lightningnewtab goo.mx/y6bQVb
Computers and electronics in agriculture
Kusrini Kusrini | My Journals | Log Out | Help
EVISE
Home Reports
The COVID-19 pandemic impacts us all, and we are offering all possible support to our customers and employees. While at present there has been no major impact to our business or services, we ask for your understanding that this unprecedented situation might lead to some delays in the peer review process. For further support, please visit our Covid-19 community resilience resources center: www.elsevier.com/community-resilience-resources.
My Author Tasks
Start New Submission
Click here to view your submissions with a final decision
My Submissions with Journal (1)
Data Augmentation for Automated Pest Classification in Mango Farms
Current status: Under Review (26/Mar/2020)
View Editor/Reviewer comments
COMPAG_2019_1984_R1
Editor-in-Chief: John Schueller
Article Type: Research Paper
Initial submission : 21/Oct/2019


Homepage
evise.com/evise/faces/pages/homepage/homepage.jspx?_adf.ctrl-state=19luawjhs5_4
Apps Facebook SMART BUDGETING Multimedia Big Farm Funny pictures Home lightningnewtab goo.mx/y6bQVb
Computers and electronics in agriculture
Kusrini Kusrini | My Journals | Log Out | Help
EVISE
Home Reports
The COVID-19 pandemic impacts us all, and we are offering all possible support to our customers and employees. While at present there has been no major impact to our business or services, we ask for your understanding that this unprecedented situation might lead to some delays in the peer review process. For further support, please visit our Covid-19 community resilience resources center: www.elsevier.com/community-resilience-resources.
My Author Tasks
Start New Submission
Click here to view your submissions with a final decision
My Submissions with Journal (1)
Data Augmentation for Automated Pest Classification in Mango Farms
Current status: Ready for Decision (03/May/2020)
View Editor/Reviewer comments
COMPAG_2019_1984_R1
Editor-in-Chief: John Schueller
Article Type: Research Paper
Initial submission : 21/Oct/2019


Homepage
evise.com/evise/faces/pages/homepage/homepage.jspx?_adf.ctrl-state=153d2dz21n_4
Apps Facebook SMART BUDGETING Multimedia Big Farm Funny pictures Home lightningnewtab goo.mx/y6bQVb New Tab
Computers and electronics in agriculture
Kusrini Kusrini | My Journals | Log Out | Help
EVISE
Home Reports
The COVID-19 pandemic impacts us all, and we are offering all possible support to our customers and employees. While at present there has been no major impact to our business or services, we ask for your understanding that this unprecedented situation might lead to some delays in the peer review process. For further support, please visit our Covid-19 community resilience resources center: www.elsevier.com/community-resilience-resources.
My Author Tasks
Start New Submission
Click here to view your submissions with a final decision
My Submissions with Journal (1)
Data Augmentation for Automated Pest Classification in Mango Farms
Current status: Under Review (02/Jul/2020)
View Editor/Reviewer comments
COMPAG_2019_1984_R2
Editor-in-Chief: John Schueller
Article Type: Research Paper
Initial submission : 21/Oct/2019

Computers and electronics in agriculture

Kusrini Kusrini | My Journals | Log Out | Help EVISE

Home Reports

The COVID-19 pandemic impacts us all, and we are offering all possible support to our customers and employees. While at present there hasbeen no major impact to our business or services, we ask for your understanding that this unprecedented situation might lead to some delays in the peer review process. For further support, please visit our Covid-19 community resilience resources center: www.elsevier.com/community-resilience-resources.

My Author Tasks

Start New Submission — Click here to view your submissions with a final decision

My Submissions that need Revisions (1)

Data Augmentation for Automated Pest Classification in Mango Farms

Current status: Revision Requested (05/Sep/2020) | **Revision response due date:** (4/Nov/2020 (59 days left)

Agree to Revise | Decline to Revise | View Decision Letter View Editor/Reviewer comments

COMPAG_2019_1984_R2

Article Type: Research Paper

Initial submission : 21/Oct2019

Computers and electronics in agriculture

Kusrini Kusrini | My Journals | Log Out | Help EVISE

Home Reports

The COVID-19 pandemic impacts us all, and we are offering all possible support to our customers and employees. While at present there has been no major impact to our business or services, we ask for your understanding that this unprecedented situation might lead to some delays in the peer review process. For further support, please visit our Covid-19 community resilience resources center: www.elsevier.com/community-reslience-resources.

My Author Tasks

Start New Submission — Click here to view your submissions with a final decision

My Submissions with Journal (1)

Data Augmentation for Automated Pest Classification in Mango Farms

Current status: With Editor (02/Oct/2020)

View Editor/Reviewer comments

COMPAG_2019_1984_R3

Editor-in-Chief: John Schueller

Article Type: Research Paper

Initial submission : 21/Oct/2019

Computers and electronics in agriculture

Kusrini Kusrini | My Journals | Log Out | Help EVISE

Home Reports

The COVID-19 pandemic impacts us all, and we are offering all possible support to our customers and employees. While at present there has been no major impact to our business or services, we ask for your understanding that this unprecedented situation might lead to some delays in the peer review process. For further support, please visit our Covid-19 community resilience resources center: www.elsevier.comcommunity-resilience-resources.

Activity History

Activity History

Decision Summary [Across all Original Submissions/Revision]

Accept: 1
Major Revision: 2
Moderate Revision: 1
Send Back To Author: 1

Authored Submissions

View

Manuscript Number	Manuscript Title	Initial Date Submitted	Status	Status Date	Letter:
COMPAG_2019_1984_R3	Data Augmentation for Automated Pest Classificaton in Mango Farms	21/Oct/2019	Sent to Production	15/Oct/2020	Accept
COMPAG_2019_1984	A Machine Leaning Technique for Accurate Pest Identification in Mango Farms	21/Oct/2019	Under Resubmission	29/Oct/2019	Send Back To Author
COMPAG_2019_1984	A Machine Leaning Technique for Accurate Pest Identification in Mango Farms	21/Oct/2019	Under Revision	05/Jan/2020	Major Revision
COMPAG_2019_1984_R1	Data Augmentation for Automated Pest Classificaton in Mango Farms	21/Oct/2019	Under Revision	13/May/2020	Moderate Revision
COMPAG_2019_1984_R2	Data Augmentation for Automated Pest Classificaton in Mango Farms	21/Oct/2019	Under Revision	05/Sep/2020	Major Revision

Kusrini Kusrini <kusrini@amikom.ac.id>

Please resubmit manuscript with COMPAG_2019_1984

John Schueller (Computers and Electronics in Agriculture) <EviseSupport@elsevier.com> Wed, Oct 30, 2019 at 5:42 AM
Reply-To: schuejk@ufl.edu
To: kusrini@amikom.ac.id

Ref: COMPAG_2019_1984
Title: A Machine Learning Technique for Accurate Pest Identification in Mango Farms
Journal: Computers and Electronics in Agriculture

Dear Dr. Kusrini,

Thank you for sending your manuscript to *Computers and Electronics in Agriculture*. Before we can proceed with the review process of your manuscript we would like to ask you to address the comments listed at the end of this letter and resubmit your manuscript.

To submit your revised manuscript:

- Log in to EVISE® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG
- Locate your manuscript under the header 'My Incomplete Submissions' on your 'My Author Tasks' view
- Click on 'Agree to Resubmit'
- Make the required edits
- Click on 'Complete Submission' to approve

What happens next?
After you approve your submission preview you will receive a notification that the submission is complete. To track the status of your paper throughout the editorial process, log in to EVISE® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG.

I look forward to receiving your revised manuscript as soon as possible.

Kind regards,

Computers and Electronics in Agriculture

Comments from a reviewer:

The Guide for Authors clearly states that the manuscript should be double-spaced. It is not double-spaced.

The line numbering should continue from page to page. It should not restart at 1 on each page.

Have questions or need assistance?
For further assistance, please visit our Customer Support site. Here you can search for solutions on a range of topics, find answers to frequently asked questions, and learn more about EVISE® via interactive tutorials. You can also talk 24/5 to our customer support team by phone and 24/7 by live chat and email.

UNIVERSITAS AMIKOM YOGYAKARTA

Kusrini Kusrini <kusrini@amikom.ac.id>

Received resubmission COMPAG_2019_1984

Computers and Electronics in Agriculture <EviseSupport@elsevier.com> Thu, Oct 31, 2019 at 12:24 AM
Reply-To: compag@elsevier.com
To: kusrini@amikom.ac.id

This message was sent automatically.

Ref: COMPAG_2019_1984
Title: A Machine Learning Technique for Accurate Pest Identification in Mango Farms
Journal: Computers and Electronics in Agriculture

Dear Dr. Kusrini,

Thank you for resubmitting your manuscript for consideration for publication in Computers and Electronics in Agriculture. Your resubmission was received in good order.

To track the status of your manuscript, please log into EVISE® http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG and go to 'My Submissions'.

We appreciate your resubmitting your work to this journal.

Kind regards,

Computers and Electronics in Agriculture

Have questions or need assistance?
For further assistance, please visit our Customer Support site. Here you can search for solutions on a range of topics, find answers to frequently asked questions, and learn more about EVISE® via interactive tutorials. You can also talk 24/5 to our customer support team by phone and 24/7 by live chat and email.

Kusrini Kusrini <kusrini@amikom.ac.id>

Your manuscript COMPAG_2019_1984 has been sent for review

Computers and Electronics in Agriculture <EviseSupport@elsevier.com> Sun, Nov 3, 2019 at 2:45 AM
Reply-To: compag@elsevier.com
To: kusrini@amikom.ac.id

This message was sent automatically.

Reference: COMPAG_2019_1984
Title: A Machine Learning Technique for Accurate Pest Identification in Mango Farms
Journal: Computers and Electronics in Agriculture

Dear Dr. Kusrini,

I am currently identifying and contacting reviewers who are acknowledged experts in the field. Since peer review is a voluntary service it can take time to find reviewers who are both qualified and available. While reviewers are being contacted, the status of your manuscript will appear in EVISE® as 'Reviewer Invited'.

Once a reviewer agrees to review your manuscript, the status will change to 'Under Review'. When I have received the required number of expert reviews, the status will change to 'Ready for Decision' while I evaluate the reviews before making a decision on your manuscript.

To track the status of your manuscript, please log into EVISE® and go to 'My Submissions' via:
http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG

Kind regards,

Computers and Electronics in Agriculture

Have questions or need assistance?
For further assistance, please visit our Customer Support site. Here you can search for solutions on a range of topics, find answers to frequently asked questions, and learn more about EVISE® via interactive tutorials. You can also talk 24/5 to our customer support team by phone and 24/7 by live chat and email.

Kusrini Kusrini <kusrini@amikom.ac.id>

Revision requested for COMPAG_2019_1984

John Schueller (Computers and Electronics in Agriculture) <EviseSupport@elsevier.com> Sun, Jan 5, 2020 at 11:02 PM
Reply-To: schuejk@ufl.edu
To: kusrini@amikom.ac.id

Ref: COMPAG_2019_1984
Title: A Machine Learning Technique for Accurate Pest Identification in Mango Farms
Journal: Computers and Electronics in Agriculture

Dear Dr. Kusrini,

Thank you for submitting your manuscript to Computers and Electronics in Agriculture. I have completed the review of your manuscript and a summary is appended below. The reviewers recommend reconsideration of your paper following major revision. I invite you to resubmit your manuscript after addressing all reviewer comments.

When resubmitting your manuscript, please carefully consider all issues mentioned in the reviewers' comments, outline every change made point by point, and provide suitable rebuttals for any comments not addressed.

To submit your revised manuscript:

- Log into EVISE® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG
- Locate your manuscript under the header 'My Submissions that need Revisions' on your 'My Author Tasks' view
- Click on 'Agree to Revise'
- Make the required edits
- Click on 'Complete Submission' to approve

What happens next?

After you approve your submission preview you will receive a notification that the submission is complete. To track the status of your paper throughout the editorial process, log in to Evise® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG.

Enrich your article to present your research with maximum impact. This journal supports the following Content Innovations:

Data in Brief (optional):

We invite you to convert your supplementary data (or a part of it) into an additional journal publication in Data in Brief, a multi-disciplinary open access journal. Data in Brief articles are a fantastic way to describe supplementary data and associated metadata, or full raw datasets deposited in an external repository, which are otherwise unnoticed. A Data in Brief article (which will be reviewed, formatted, indexed, and given a DOI) will make your data easier to find, reproduce, and cite.

You can submit to Data in Brief via the Computers and Electronics in Agriculture submission system when you upload your revised Computers and Electronics in Agriculture manuscript. To do so, complete the template and follow the co-submission instructions found here: www.elsevier.com/dib-template. If your Computers and Electronics in Agriculture manuscript is accepted, your Data in Brief submission will automatically be transferred to Data in Brief for editorial review and publication.

Please note: an open access Article Publication Charge (APC) is payable by the author or research funder to cover the costs associated with publication in Data in Brief and ensure your data article is immediately and permanently free to access by all. For the current APC see: https://www.elsevier.com/journals/data-in-brief/2352-3409/open-access-journal

Please contact the Data in Brief editorial office at dib-me@elsevier.com or visit the Data in Brief homepage (www.journals.elsevier.com/data-in-brief/) if you have questions or need further information.

I look forward to receiving your revised manuscript as soon as possible.

Kind regards,

Professor. Schueller
Editor-in-Chief
Computers and Electronics in Agriculture

Comments from the editors and reviewers:
-**Reviewer 1**

-

The manuscript describes the use of VGG-16 deep-learning model to classify multi-pest. So far I was not able to detect the value of the manuscript because the improvement for models from this paper is at least not obvious for me. The authors should first improve the writing and clearness of the paper.

1. Line269-270:'the amount of data is not enough to develop advanced classification models based on deep-learning'. How many images are there in the data set? Maybe I miss the information.

2. The title of the manuscript is " A Machine Learning Technique for Accurate Pest Identification in Mango Farms". However, the accuracy of the VGG-16 deep-learning model only achieved 67% on testing data. So, the model cannot accurately classify the 16-classes of pests.

3. From Fig 10~12 , it can be seen that the model might overfit the training data. To increase precision of the model, the VGG-16 deep-learning model should be trained using more data.

-**Reviewer 2**

-

The research will be of help to mango farmers in pest management and the efforts of the authors are appreciated in improving pest identification using data augmentation since there is a requirement of large amounts of data for developing an efficient training models and data sets. However, there are just some clarifications and comments on the research work and these are the following:

- Explain how the authors came up with 15 unique categories of pests that are identified with the 48 distinct types of pests presented in the paper.
- From table 1, are these the actual images from infested leaves or gathered from secondary sources? Please include in the descriptions.
- Does it affect the output if the data sets are captured real time?
- Please include also the season (months or duration of infestation) of each pest since pests evolve and are dependent upon the environmental effects, considering the appearance of the pests due to seasonal changes, as mentioned in the introduction.
- From Table 2 - Performance of the proposed network model for 16-class Mango pest classification results, why versions 0 and 1 have lower testing accuracy rating vs. validation accuracy than version 2? What would be its implication?
- The increase of 7% in the testing of original data with augmentation process (from 67% to 74% overall accuracy) is a good result. Please include supporting data such as related researches to pest infestation that will strengthened the claim.
- Consider adding the technique used in the title of the research to make it more specific, not a generic theme (e.g. "A machine learning technique through data augmentation...")

MethodsX (optional)

We invite you to submit a method article alongside your research article. This is an opportunity to get full credit for the time and money you have spent on developing research methods, and to increase the visibility and impact of your work.

If your research article is accepted, your method article will be automatically transferred over to the open access journal, MethodsX, where it will be editorially reviewed and published as a separate method article upon acceptance. Both articles will be linked on ScienceDirect.

Please use the MethodsX template available here when preparing your article: https://www.elsevier.com/MethodsX-template. Open access fees apply.

Have questions or need assistance?
For further assistance, please visit our Customer Support site. Here you can search for solutions on a range of topics, find answers to frequently asked questions, and learn more about EVISE® via interactive tutorials. You can also talk 24/5 to our customer support team by phone and 24/7 by live chat and email.

RESPONSE TO REVIEWERS

Line269-270:'the amount of data is not enough to develop advanced classification models based on deep-learning'. How many images are there in the data set? Maybe I miss the information.

Comments: The dataset consists of 510 images collected from the Mango fields with 15-pest categories. As the occurrence of the pest is influenced by several external factors (including weather patterns, geographic regions, previous pest control measures implemented by farmers), our intuition is to enlarge the available dataset that closely adopts the real-world constraints of data capture. To achieve this process in a systematic manner, we have incorporated the use of data augmentation process as presented in the paper. Following the data augmentation process the results (presented in Figure 4, page 17), has been validated by the farmers indicating the closeness to the original data collection process. The total number of images used in the training of the network is 62, 047 images. In order to evaluate the effectiveness of the data augmentation process, the experiments were categorised into 3 runs. Version 0 evaluated the results against the original dataset consisting of 510 images. Version 1 included 46, 500 images following the application of blur, contrast and affine transform. Finally, Version 2, consists of 62, 047 images. The paper has been revised Section 4.1 (line 399- 416, page 20) and as follows:
"In order to evaluate the impact of data augmentation, we carry out three experimental scenarios, as below:

- Version 0: the dataset consists of 510 original images as captured from the mango cultivation farms in Indonesia. The overall image dataset is divided into 3 parts with 310 images as training data, 103 images as validation data, 97 images as testing data. The objective of the experiment is to calculate the baseline performance of the system when the proposed network is trained using the limited number of images, validated and tested with originally captured images without any augmentation. The distribution of the dataset is presented in Figure 7.
- Version 1: the image dataset consists of 46.500 samples as training data following the application of the data augmentation process. The objective of the scenario is to evaluate the performance of the network training while the validation and testing sequences represent the original dataset without data augmentation. The data augmentation process is carried out using the framework presented in Figure 3, and consists of noise addition, blur, contrast and affine transformation operation. The overall distribution of the dataset is presented in Figure 8.
- Version 2: The dataset consists of 62.047 images in total. It consists of 46.500 training images as a result of the augmentation process of 510 original training images. The validation data consists of 15.450 images as a result of the augmentation for the original validation data. We keep the testing dataset without any modification to keep the original data from the field. The distribution of the dataset is presented in Figure 9".

The title of the manuscript is "A Machine Learning Technique for Accurate Pest Identification in Mango Farms". However, the accuracy of the VGG-16 deep-learning model only achieved 67% on testing data. So, the model cannot accurately classify the 16-classes of pests

Comments: We would like to thank the reviewer for the comment. We agree that the title of the paper is indeed misleading, and it has been revised to reflect the motivation of the paper (following other comments received from the reviewers). The objective of the paper is to study the assessment of data augmentation process in the identification of pests affecting Mango crops. We agree with the reviewers that, the performance of 67% of overall accuracy on the original dataset, does indicate the lack of distinguishable features learnt by the network. Following the application of the image augmentation process, we notice an improvement of 7% increase in the classification performance. The observed improvement is attributed to the increased number of features learnt by the network following the augmentation process. Following the feedback, we have also carried out additional investigation on improving the data collection process that is reflective of the appearance of pests in Mango crops using semi-automatic segmentation process. The approach adopted is reflected in the future work proposed (line 488 to 494, page 28 to 29). The paper title has been updated as “Data Augmentation for Automated Pest Classification in Mango Farms”

From Fig 10~12, it can be seen that the model might overfit the training data. To increase precision of the model, the VGG-16 deep-learning model should be trained using more data.

Comments: We appreciate the feedback from the reviewer. Our intuition on the overfitting of the training data relates to the availability of distinguishability features between the pest and non-pest regions in the images. In addition, we notice the improvement in the version 2 training performance compared to both version 0 and version 1, due to the use of data augmented in the validation set. The training of version 2 uses 46.500 image samples followed by the validation set consisting of 15.450 images and the testing image set with 97. In order to address the challenge of overfitting, we have considered the use of foreground and background distinguishability of pest appearance in the network training. This consideration is included as a part of the future work to be carried out. The revised version of the paper includes an additional paragraph in Section 5, between lines 503 to 513, page 29 to this effect.
“Following the review of the results, an extended approach is also being considered for enhancing the quality of the data augmentation process. In this approach, the appearance of the pest regions is segmented as foreground along with the structural deformity experienced by the leaves. The segmented regions of the pest are subjected to data augmentation framework presented in the paper. The training of the deep-learning network is carried out with the superimposed augmented pest images as foreground against the naturally appearing background regions. An initial outcome of such an approach is presented in Figure 17. The training process to be carried out on such dataset will facilitate the deep-learning models to distinguish between the foreground pest and the background images, thus leading to the improvement in performance accuracy. In addition, we will also evaluate the performance of the network training against the overfitting as presented in Figure 10 to Figure 12. The approach will be further invested as a part of our ongoing research activity”

Explain how the authors came up with 15 unique categories of pests that are identified with the 48 distinct types of pests presented in the paper.

Comments: As the reviewer has pointed out, the total number of pest categories identified in the paper is 48. However, among these pests the 15 categories pest addressed in the paper cause maximum impact in the cultivation of Mango in Indonesia. In addition, the selected pest categories also result in the structural deformity of the Mango leaves, facilitating the farmers to quickly contain the spread of the pest across the farm. The economic impact of 15-pest categories has been documented by the Indonesia's international trading partner, Australia as a source of concern affecting export of Mango. Since we missed to clearly explain this in the original manuscript, a new paragraph has been revised in Section 3.1 (lines: 265 to 283, page 11-12), clarifying this aspect.

"These pests, Apoderus javanicus, Aulacaspis tubercularis, Ceroplastes rubens, Cisaberoptus kenyae, Dappula tertia, Dialeuropora decempuncta, Erosomyia sp., Icerya seychellarum, Ischnaspis longirostris, Mictis longicornis, Neomelicharia sparsa, Orthaga euadrusalis, Procontarinia matteiana, and Valanga nigricornis, are commonly occurring in Indonesia and have been identified as a threat to the economic welfare among trading partner countries, such as Australia (Australian Government Department of Agriculture and Water Resources, 2015).

As an instance, the population of Apoderus javanicus increases from August to September (Manjunath, 2018). There is high population density of Aulacapsis tuberculari during April to August (Salem, Mahmoud, & Ebadah, 2015). Cisaberoptus kenyae is recorded every year and the highest populations have been witnessed between January and August (Abou-Awad, Metwally, & Al–Azzazy, 2009). The most serious damage of D. tertia larvae often appears between June and July (Chang, Luo, Wu & Wen, 2018). High populations of Dialeuropora decempuncta is witnessed between March to June and low populations from October to January (Singh, Maheshwari, & Saratchandra, 2005). Icerya seychellarum exists every year, and the population increases from March and subsequently decreases from September (Mohamed, 2015)

The occurrence of following pests (Erosomyia sp., Ceroplastes rubens, Ischnaspis longirostris, Neomelicharia sparsa, Mictis longicornis, Orthaga euadrusalis, Procontarinia matteiana, Valanga nigricornis) have not been formally recorded in the literature, but based on the observations in the mango farms, these pests are always found at each time of observation. Based on observations in Indonesia the existence of this pest is always found throughout the year."

From table 1, are these the actual images from infested leaves or gathered from secondary sources? Please include in the descriptions.

Comments: Images presented in Table 1 are captured from the Mango fields using low-cost sensing equipment (mobile phones) by the farmers. The suggested changes are included in Section 3.2 (line 289-292, Page 13).

"The images depicted in the table represent the primary data that was captured from infested leaves from Mango farms. In order to highlight the visual characteristics of the pests, the collected images were cropped to indicate part of the pest specific characteristic. The images used in the experiments were taken real time from infested leaves, without any preprocessing.".

Does it affect the output if the data sets are captured real time?

Comments: The data collection process adopted in the development of the pest recognition system is designed to help farmers to collect data in real-time from the Mango farm, as outlined in Figure 1. The performance of the system is not affected when images are captured in real-time.

Please include also the season (months or duration of infestation) of each pest since pests evolve and are dependent upon the environmental effects, considering the appearance of the pests due to seasonal changes, as mentioned in the introduction.

Comments: We thank the reviewers comment to improve the readability of the paper. The data collection process has been carried out from April 2009 to September 2019. During the *long* period of observation over *several* months the following occurrences of pests have been recorded. A paragraph has been added to the text to clarify the appearance of pests across various seasons. The changes are available in, Section 3.2 (line 265-282, Page 11-12) as follows.

"As an instance, the population of Apoderus javanicus increases from August to September (Manjunath, 2018). There is high population density of Aulacapsis tuberculari during April to August (Salem, Mahmoud, & Ebadah, 2015). Cisaberoptus kenyae is recorded every year and the highest populations have been witnessed between January and August (Abou-Awad, Metwally, & Al–Azzazy, 2009). The most serious damage of D. tertia larvae often appears between June and July (Chang, Luo, Wu & Wen, 2018). High populations of Dialeuropora decempuncta is witnessed between March to June and low populations from October to January (Singh, Maheshwari, & Saratchandra, 2005). Icerya seychellarum exists every year, and the population increases from March and subsequently decreases from September (Mohamed, 2015)

The occurrence of following pests (Erosomyia sp., Ceroplastes rubens, Ischnaspis longirostris, Neomelicharia sparsa, Mictis longicornis, Orthaga euadrusalis, Procontarinia matteiana, Valanga nigricornis) have not been formally recorded in the literature, but based on the observations in the mango farms, these pests are always found at each time of observation. Based on observations in Indonesia the existence of this pest is always found throughout the year."

From Table 2 - Performance of the proposed network model for 16-class Mango pest classification results, why versions 0 and 1 have lower testing accuracy rating vs. validation accuracy than version 2? What would be its implication?

Comments: In order to evaluate the performance of the data augmentation process, the experiments were classified into 3-runs, each consisting of different datasets. The experiments on version 0 and version 1 are carried out on the original data for the validation set. While for version 2, the validation set consists of the augmented data output. A clarification on the same is mentioned in the paper in Section 4.2 (line 453-464, page 25-26).

"Based on the experiment, it is shown that the version 2 experiments which uses augmented images for training, validation and testing yields the best performance. The improvement in the accuracy of the experiment is attributed to the overall learning distinguishability of features learnt by the network. Both validation and testing accuracies represent how well the model can generalize or predict an unseen data. As opposed to the use of validation data, the testing data represents the images captured from the real-world data. The comparative performance of validation accuracy in version 2 experiments showcases the importance of data augmentation process in training the network model. As mentioned earlier, the version 2 experiment uses the augmented image sequences for both training and validation, while the version 0 and version 1 experiment run rely on the use of original data for the validation. We attribute the increase in performance to the generalisability of the proposed network for learning distinguishable features available through the data augmentation process, which was not available in version 0 and version 1 runs".

The increase of 7% in the testing of original data with augmentation process (from 67% to 74% overall accuracy) is a good result. Please include supporting data such as related researches to pest infestation that will strengthened the claim.

Comments: Augmentation process has resulted in an increase 7% accuracy of extended VGG-16 for mango pest identification. The increase in the performance of the proposed framework is attributed to the data augmentation. In the literature, some techniques of augmentation in some deep learning algorithms has resulted in an improvement of 0.2% until 4.6%. However, the topic of data augmentation in the study of pest categorisation for Mango cultivation in Indonesia affected by the selected 15 pest categories has not been sufficiently addressed in the literature. Hence, the research work presented in the paper addresses the impact of data augmentation framework on improving the performance of the pest classification commonly appearing in Indonesia. In addition, we have also considered alternative approaches for training the deep-learning network based on foreground (pest) and background (natural patterns) segmentation. An overview of the approach is presented in the paper (Section 5, between lines 503 to 513, page 29) and is supported by an image (Figure 17) to highlight our rationality in adopting such an approach. The observations from the alternate approach for training the deep-learning network will be further subsequently reported in forthcoming publications.

Consider adding the technique used in the title of the research to make it more specific, not a generic theme (e.g. "A machine learning technique through data augmentation...")

Comments: The paper title has been updated. "Data Augmentation for Automated Pest Classification in Mango Farms".

UNIVERSITAS AMIKOM YOGYAKARTA

Kusrini Kusrini <kusrini@amikom.ac.id>

Revision Requested - COMPAG_2019_1984 for Computers and Electronics in Agriculture

Computers and Electronics in Agriculture <EviseSupport@elsevier.com> Tue, Feb 4, 2020 at 12:03 PM
Reply-To: compag@elsevier.com
To: kusrini@amikom.ac.id

This message was sent automatically.

Ref: COMPAG_2019_1984
Title: A Machine Learning Technique for Accurate Pest Identification in Mango Farms
Journal: Computers and Electronics in Agriculture

Dear Dr. Kusrini,

On 05/Jan/2020 I sent the above-referenced request for your manuscript, and would kindly like to remind you to respond to this request by 05/Mar/2020.

To view the request, log into EVISE® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG and click on the title of your manuscript, located under 'My Author Tasks' on your homepage. Complete the required steps and submit the manuscript.

What happens next?

After you submit your manuscript you will receive an email confirmation that your submission is complete. To track the status of your manuscript throughout the editorial process, log into EVISE® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG and locate your submission under the header 'My Submissions with Journal' on your 'My Author Tasks' view.

Kind regards,

Computers and Electronics in Agriculture

Have questions or need assistance?

For further assistance, please visit our Customer Support site. Here you can search for solutions on a range of topics, find answers to frequently asked questions, and learn more about EVISE® via interactive tutorials. You can also talk 24/5 to our customer support team by phone and 24/7 by live chat and email.

UNIVERSITAS AMIKOM YOGYAKARTA

Kusrini Kusrini <kusrini@amikom.ac.id>

Revision requested for COMPAG_2019_1984_R1

John Schueller (Computers and Electronics in Agriculture) <EviseSupport@elsevier.com>
Reply-To: schuejk@ufl.edu
To: kusrini@amikom.ac.id

Wed, May 13, 2020 at 8:56 PM

Ref: COMPAG_2019_1984_R1
Title: Data Augmentation for Automated Pest Classification in Mango Farms
Journal: Computers and Electronics in Agriculture

Dear Dr. Kusrini,

Progress has been made. Please make further revision.

<Standard form letter follows...>

Thank you for submitting your manuscript to Computers and Electronics in Agriculture. I have received comments from reviewers on your manuscript. Your paper should become acceptable for publication pending suitable moderate revision and modification of the article in light of the appended reviewer comments.

When resubmitting your manuscript, please carefully consider all issues mentioned in the reviewers' comments, outline every change made point by point, and provide suitable rebuttals for any comments not addressed.

To submit your revised manuscript:

- Log into EVISE® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG
- Locate your manuscript under the header 'My Submissions that need Revisions' on your 'My Author Tasks' view
- Click on 'Agree to Revise'
- Make the required edits
- Click on 'Complete Submission' to approve

What happens next?

After you approve your submission preview you will receive a notification that the submission is complete. To track the status of your paper throughout the editorial process, log in to EVISE® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG.

Enrich your article to present your research with maximum impact. This journal supports the following Content Innovations:

Data in Brief (optional):

We invite you to convert your supplementary data (or a part of it) into an additional journal publication in Data in Brief, a multi-disciplinary open access journal. Data in Brief articles are a fantastic way to describe supplementary data and associated metadata, or full raw datasets deposited in an external repository, which are otherwise unnoticed. A Data in Brief article (which will be reviewed, formatted, indexed, and given a DOI) will make your data easier to find, reproduce, and cite.

You can submit to Data in Brief via the Computers and Electronics in Agriculture submission system when you upload your revised Computers and Electronics in Agriculture manuscript. To do so, complete the template and follow the co-submission instructions found here: www.elsevier.com/dib-template. If your Computers and Electronics in Agriculture manuscript is accepted, your Data in Brief submission will automatically be transferred to Data in Brief for editorial review and publication.

Please note: an open access Article Publication Charge (APC) is payable by the author or research funder to cover the costs associated with publication in Data in Brief and ensure your data article is immediately and permanently free to access by all. For the current APC see: https://www.elsevier.com/journals/data-in-brief/2352-3409/open-access-journal

Please contact the Data in Brief editorial office at dib-me@elsevier.com or visit the Data in Brief homepage (www.journals.elsevier.com/data-in-brief/) if you have questions or need further information.

I look forward to receiving your revised manuscript as soon as possible.

Kind regards,

Professor. Schueller
Editor-in-Chief
Computers and Electronics in Agriculture

Comments from the editors and reviewers:
-Reviewer 1

-

Data augmentation has been widely used in deep learning models training to improve the accuracy of image classification and object detection. However, the original dataset in this manuscript only consisted of 510 images, which caused serious overfitting and degraded the accuracy of pest classification.

The title has been revised as "Data Augmentation for Automated Pest Classification in Mango Farms". So, the manuscript should focus on accuracy improvement by using the data augmentation. For example, the performance of "noise + affine transformation", "blur + affine transformation" and "contrast + affine transformation" should be evaluated separately. Please evaluate the performance of data augmentation when the amount of training set data increases. Figure 1 should be deleted because the pest classification model falls short in meeting the needs of pest recognition application.

-Reviewer 2

- All comments were addressed in detailed by the author/s.

MethodsX (optional)

We invite you to submit a method article alongside your research article. This is an opportunity to get full credit for the time and money you have spent on developing research methods, and to increase the visibility and impact of your work.

If your research article is accepted, your method article will be automatically transferred over to the open access journal, MethodsX, where it will be editorially reviewed and published as a separate method article upon acceptance. Both articles will be linked on ScienceDirect.

Please use the MethodsX template available here when preparing your article: https://www.elsevier.com/MethodsX-template. Open access fees apply.

Have questions or need assistance?
For further assistance, please visit our Customer Support site. Here you can search for solutions on a range of topics, find answers to frequently asked questions, and learn more about EVISE® via interactive tutorials. You can also talk 24/5 to our customer support team by phone and 24/7 by live chat and email.

Revision 2 - response

Data augmentation has been widely used in deep learning models training to improve the accuracy of image classification and object detection. However, the original dataset in this manuscript only consisted of 510 images, which caused serious overfitting and degraded the accuracy of pest classification.

The title has been revised as "Data Augmentation for Automated Pest Classification in Mango Farms". So, the manuscript should focus on accuracy improvement by using the data augmentation. For example, the performance of "noise + affine transformation"," blur + affine transformation" and "contrast + affine transformation" should be evaluated separately.

Comments: To address these specific remarks, we have prepared a total of 18 datasets following the application of each data augmentation function. The distribution of the datasets and the corresponding application of data augmentation is presented in the following pie chart (Figure 1). The cumulative combination of the data augmentation results is obtained based on the data augmentation framework presented in the paper (refer to Figure 3). For each of the dataset generated, the classification model has been trained and the results are summarised in the table (Table 1). In addition, to showcasing the performance accuracy, we also highlight the % improvement achieved by the application of data augmentation. Following a careful analysis of the results, the application, the application of contrast and affine transform leads to an overall improvement of 13.43% in the classification accuracy of the proposed framework.

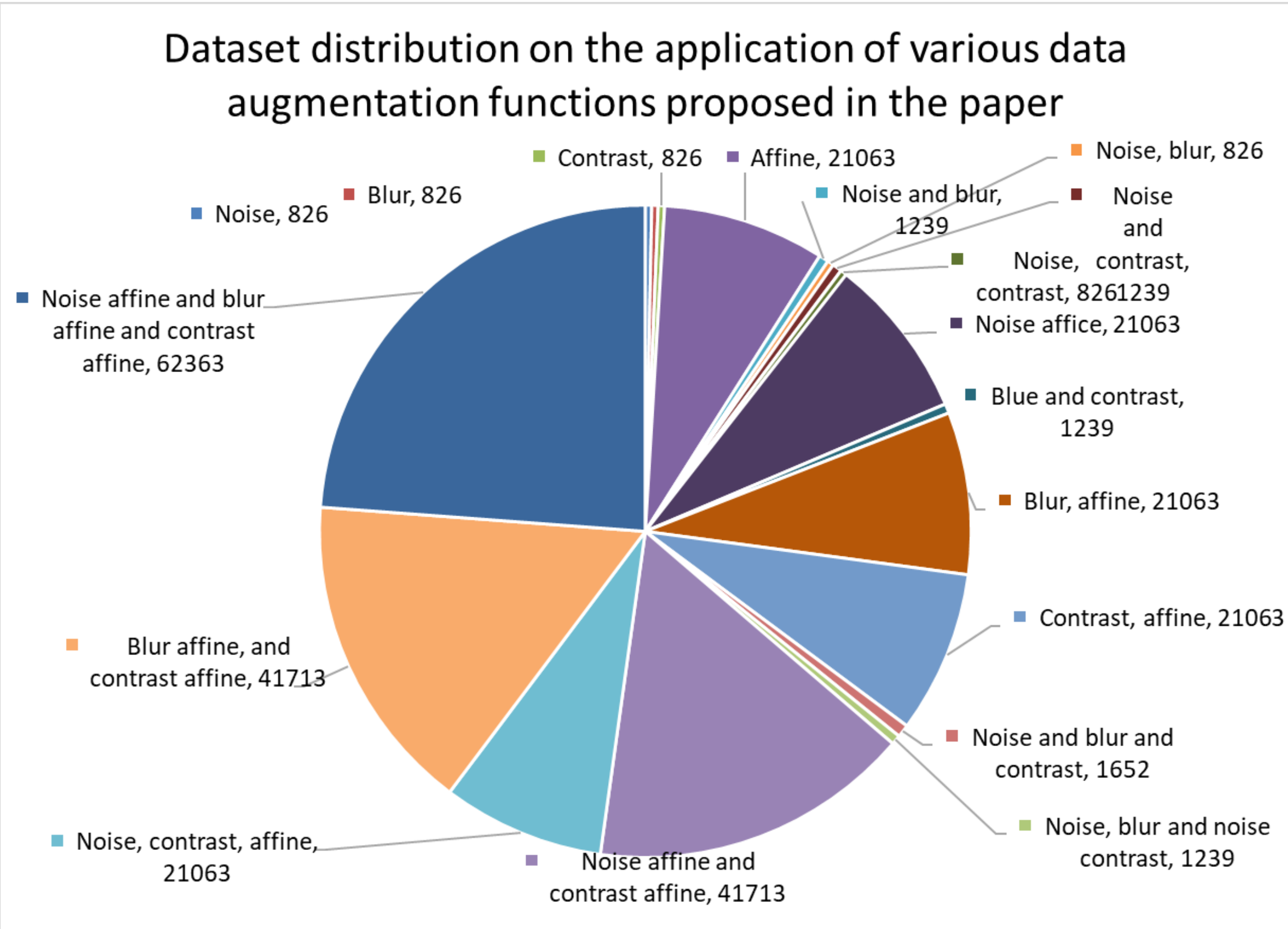


Figure 1 - The distribution of data augmentation dataset

Table 1 - Performance evaluation of each dataset and improvement of the performance against data augmentation process

No.	Data augmentation functions applied on the images	No. of training images	No. of images for testing	Overall F1 score aggregated for all 16 classes of classification	% improvement against the baseline (without data augmentation)
1	Noise	826	97	70	4.47
2	Blur	826	97	69	2.98
3	Contrast	826	97	71	5.97
4	Affine	21063	97	70	4.47
5	Noise and blur	1239	97	66	-1.49
6	Noise, blur	826	97	71	5.97
7	Noise and contrast	1239	97	70	4.47
8	Noise, contrast	826	97	70	4.47
9	Noise, affine	21063	97	70	4.47
10	Blue and contrast	1239	97	70	4.47
11	Blur, affine	21063	97	65	-2.98
12	**Contrast, affine**	**21063**	**97**	**76**	**13.43**
13	Noise and blur and contrast	1652	97	65	-2.98
14	Noise, blur and noise contrast	1239	97	70	4.47
15	Noise affine and contrast affine	41713	97	72	7.46
16	Noise, contrast, affine	21063	97	73	8.95
17	Blur affine, and contrast affine	41713	97	73	8.95
18	Noise affine and blur affine and contrast affine	62363	97	75	11.94

The following changes are included in the paper (Page 28, Line: 466 - 490).

"In addition to the performance assessment of the classification framework on the cumulative outcome of the proposed data augmentation framework, a detailed assessment of each data augmentation function is carried out. The objective of this evaluation is to evaluate the overall contribution of the selected data augmentation function namely noise, blur, contrast and affine transform towards improving the classification performance of the proposed framework. To achieve this objective, a set of 18 different data sets were generated, with an exhaustive combination of all four data augmentation functions. Each dataset set has been processed through the classification framework with the training of the network carried out using the data augmented images. The testing images used for the evaluation remain the same as version 2 dataset. In Figure 16, a percentage comparison of each data augmentation function against the classification accuracy is evaluated against the baseline classification performance when applied without the data augmentation process. The analysis of results highlights the disproportional influence of the data augmentation functions in enhancing the classification performance. The application of contrast and affine transform results in an overall improvement of 13.43% in the classification accuracy. However, the application of noise and blur has resulted in the decrease of classification accuracy by 1.49%. Similar decrease in classification accuracy of 2.98% is also noted for the application of blur and affine transforms along with the application of noise, blur and contrast. The detailed evaluation of the result indicates the positive outcome of the two data augmentation functions namely contrast and affine, which has led to the overall improvement of the classification accuracy. Furthermore, the application of the contrast function upon the images are limited to the scope of natural light in which the images are expected to be captured. This is achieved by the use of multiplication and addition transformation function consisting in total of 12 filters with α ranging from 1 to 1.5 and β ranging between 0 to 5 was applied on the original image. Similarly, the application of the affine geometric transform is carried out using three dimensional rotational across x, y and z axis. The rotational transform is applied throughout the 360 degrees in both y and z axis. The final dataset has been filtered for transpose images as they do not add value to valuable learning features. The implementation of the data augmentation functions was carried out using OpenCV Library (OpenCv, 2014)."

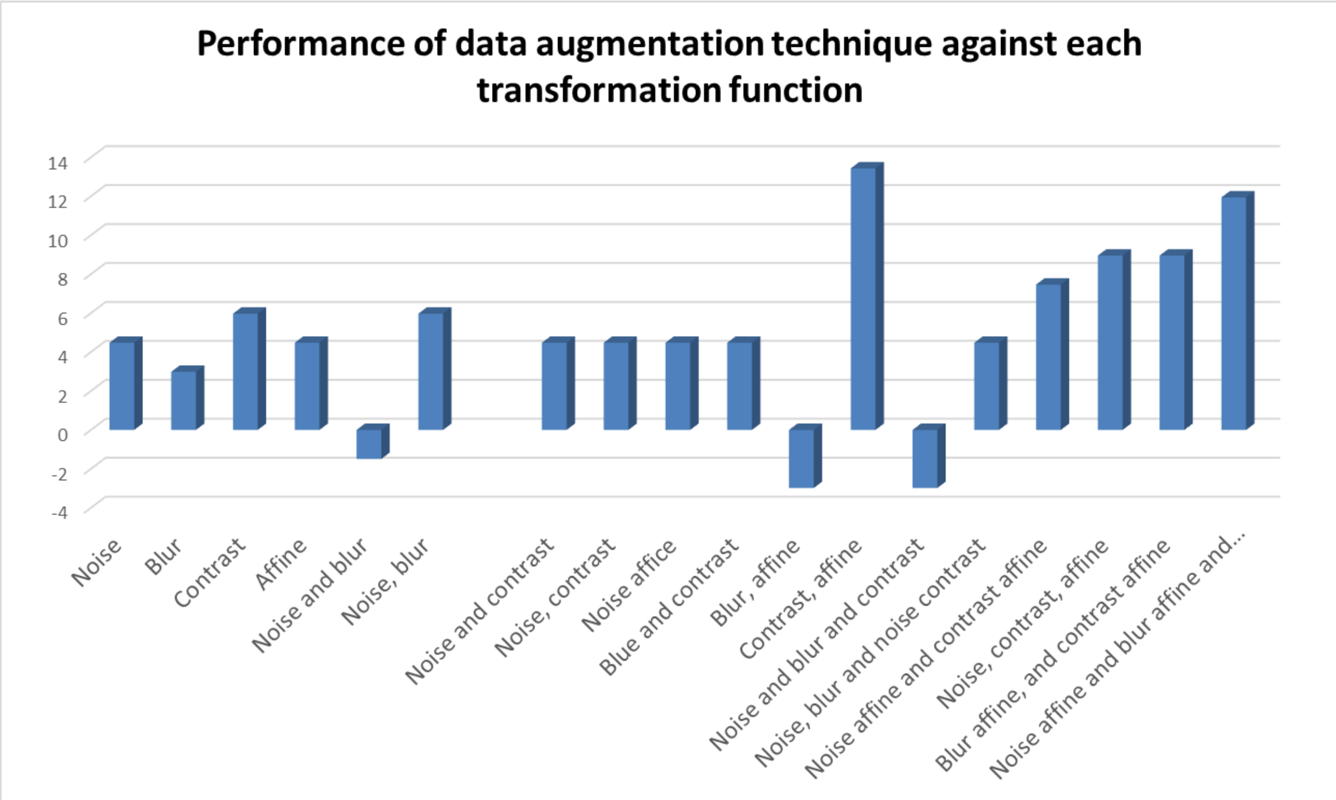


Figure 16 - F1 measure for blur, noise and contrast evaluation of data augmentation process

Please evaluate the performance of data augmentation when the amount of training set data increases.

Comments: We appreciate the feedback and following the detailed evaluation of the disproportional contribution of different data augmentation functions upon the classification result, we have chosen to focus on the use of contrast and affine transform to generate varying quantities of the training data. To evaluate the overall classification performance against varying amount of training data, the angle of rotation across y and z-axis were changed from one-degree rotation at 13 degrees in across both axes resulting in a total of 930 images. Subsequently, the angle of rotation across both y and x axes were carried out for a total of 100 different observation angles resulting in the training data of 83, 046 images. For each of the dataset, the parameters of contrast have been constant. The evaluation summary of the classification performance against the varying amount of training dataset has been plotted in the following Figure.

The following changes are included in the paper (Page: 30, Line 493- 508)

"Following the determination of disproportional influence of data augmentation function upon the multi-class pest classification framework, an additional experiment has been carried out that maps the classification performance against the quantity of the training data. As noted in the previous experiment, the application of contrast and affine transform across y- and z-axis has yielded an improvement of 13.43% improvement against the baseline evaluation without the use of data augmentation framework. Thus, in this experiment, our aim is to evaluate the quantity of the training data required to achieve the best performance in the multi-class pest classification. Therefore, to achieve this objective, the angle of rotation in y- and z-axis is systematically carried out for each of the 310 images from the training dataset. The training data was generated progressively by systematic variation in the number of rotations applied across two axes with a maximum of 100 different combinations applied across 360 degrees. For each of the transformation, the resultant dataset was filtered against transpose images as they do not add any additional value. The F1-measure for each training dataset is presented in Figure 17. The classification performance saturates at 77%. Following the exhaustive list of 100 different angle variations applied on both y- and x-axes, further increase in the training data has saturated the performance of the multi-class pest classification framework. The graphical model represents the variations of the pest classifier which peaks at 83,046 training samples. The computational time required for each dataset is also presented along the z-axis."

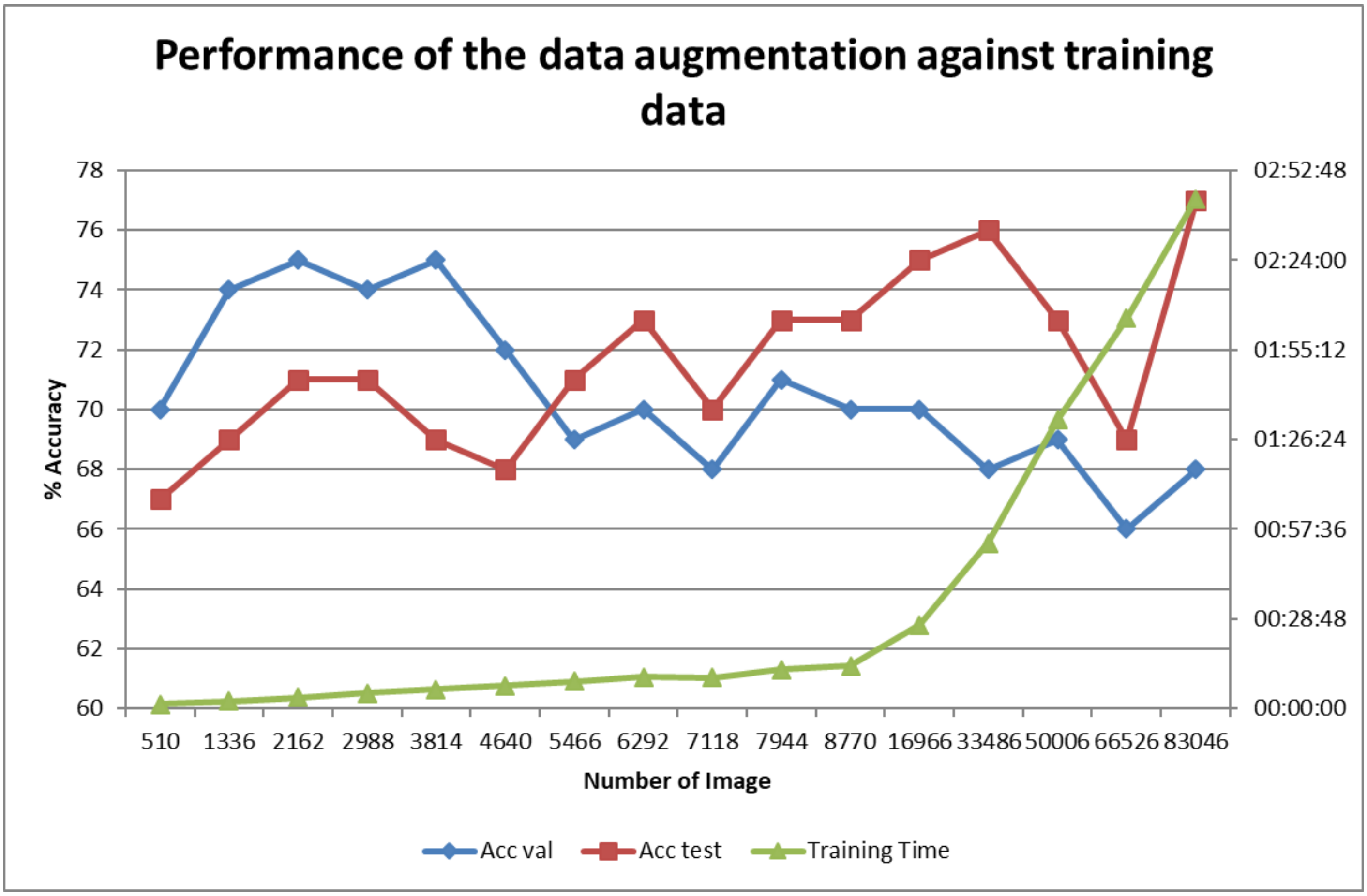


Figure 17 – Performance of data augmentation against training data

Figure 1 should be deleted because the pest classification model falls short in meeting the needs of pest recognition application.

Comments: We thank the reviewer for the observation and apologise for the oversight. The “Section 3.1: Overall data workflow management” has been deleted and in place the following text has been provided (Page. 8, Line: 220 – 227).

“The proposed framework for pest recognition relies on the processing of real-world images captured with low-cost handheld devices from the Mango farms. One of the crucial requirements that is addressed in the research in the lack of resources for pre-processing the images captured by farmers. Thus, the image from the farm is processed as is and thus presents a set of unique challenges with complex background and partial occlusions and overlapping leaf structures upon other pests Therefore, addressing these challenges, the training of the pest recognition framework is carried out using data augmentation techniques such as noise, blur and contrast along with affine transformations. The rest of the section provides a detailed outline of the data generation process carried out in the paper for training the pest recognition framework.”

We would like to take this opportunity to thank the reviewer for sharing valuable and constructive feedback in improving the overall quality of the publication.

UNIVERSITAS AMIKOM YOGYAKARTA

Kusrini Kusrini <kusrini@amikom.ac.id>

Revision requested for COMPAG_2019_1984_R2

John Schueller (Computers and Electronics in Agriculture) <EviseSupport@elsevier.com>
Reply-To: schuejk@ufl.edu
To: kusrini@amikom.ac.id

Sun, Sep 6, 2020 at 1:27 AM

Ref: COMPAG_2019_1984_R2
Title: Data Augmentation for Automated Pest Classification in Mango Farms
Journal: Computers and Electronics in Agriculture

Dear Dr. Kusrini,

The reviewers are happy. But I am not. The manuscript is much too long.

I want you to cut the number of references in half by eliminating those which are repetitive or less relevant.

I want you to also go over the entire article and to make it more concise and succinct.

You might also eliminate some of the obvious explanations to our quite sophisticated readers. For example, I'm sure everyone knows what a rotation or cropping is.

The article is just too long. We're happy with the technology and its explanation, just not the verboseness of the writing.

<Standard form letter follows...>

Thank you for submitting your manuscript to Computers and Electronics in Agriculture. I have completed the review of your manuscript and a summary is appended below. The reviewers recommend reconsideration of your paper following major revision. I invite you to resubmit your manuscript after addressing all reviewer comments.

When resubmitting your manuscript, please carefully consider all issues mentioned in the reviewers' comments, outline every change made point by point, and provide suitable rebuttals for any comments not addressed.

To submit your revised manuscript:

- Log into EVISE® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG
- Locate your manuscript under the header 'My Submissions that need Revisions' on your 'My Author Tasks' view
- Click on 'Agree to Revise'
- Make the required edits
- Click on 'Complete Submission' to approve

What happens next?

After you approve your submission preview you will receive a notification that the submission is complete. To track the status of your paper throughout the editorial process, log in to Evise® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG.

Enrich your article to present your research with maximum impact. This journal supports the following Content Innovations:

Data in Brief (optional):

We invite you to convert your supplementary data (or a part of it) into an additional journal publication in Data in Brief, a multi-disciplinary open access journal. Data in Brief articles are a fantastic way to describe supplementary data and associated metadata, or full raw datasets deposited in an external repository, which are otherwise unnoticed. A Data in Brief article (which will be reviewed, formatted, indexed, and given a DOI) will make your data easier to find, reproduce, and cite.

You can submit to Data in Brief via the Computers and Electronics in Agriculture submission system when you upload your revised Computers and Electronics in Agriculture manuscript. To do so, complete the template and follow the co-submission instructions found here: www.elsevier.com/dib-template. If your Computers and Electronics in Agriculture manuscript is accepted, your Data in Brief submission will automatically be transferred to Data in Brief for editorial review and publication.

Please note: an open access Article Publication Charge (APC) is payable by the author or research funder to cover the costs associated with publication in Data in Brief and ensure your data article is immediately and permanently free to access by all. For the current APC see: https://www.elsevier.com/journals/data-in-brief/2352-3409/open-access-journal

Please contact the Data in Brief editorial office at dib-me@elsevier.com or visit the Data in Brief homepage (www.journals.elsevier.com/data-in-brief/) if you have questions or need further information.

I look forward to receiving your revised manuscript as soon as possible.

Kind regards,

Professor. Schueller
Editor-in-Chief
Computers and Electronics in Agriculture

Comments from the editors and reviewers:

-

MethodsX (optional)

We invite you to submit a method article alongside your research article. This is an opportunity to get full credit for the time and money you have spent on developing research methods, and to increase the visibility and impact of your work.

If your research article is accepted, your method article will be automatically transferred over to the open access journal, MethodsX, where it will be editorially reviewed and published as a separate method article upon acceptance. Both articles will be linked on ScienceDirect.

Please use the MethodsX template available here when preparing your article: https://www.elsevier.com/MethodsX-template. Open access fees apply.

Have questions or need assistance?
For further assistance, please visit our Customer Support site. Here you can search for solutions on a range of topics, find answers to frequently asked questions, and learn more about EVISE® via interactive tutorials. You can also talk 24/5 to our customer support team by phone and 24/7 by live chat and email.

Revision 3 Response

The reviewers are happy. But I am not. The manuscript is much too long.
I want you to cut the number of references in half by eliminating those which are repetitive or less relevant.
I want you to also go over the entire article and to make it more concise and succinct.
You might also eliminate some of the obvious explanations to our quite sophisticated readers. For example, I'm sure everyone knows what a rotation or cropping is.
The article is just too long. We're happy with the technology and its explanation, just not the verboseness of the writing.

Comments:
We thank the editor for sharing the feedback and the reviewers to have expression satisfaction on the reported research in the paper. Following the feedback received, we have carried out a careful analysis of the manuscript and thus have identified the following references to be removed as these citations are repetitive. In addition, the removal of the following references does not affect the readability of the paper

1. Agastya, I. M. A., & Setyanto, A. (2019). Classification of Indonesian batik using deep learning techniques and data augmentation. *Proceedings - 2018 3rd International Conference on Information Technology, Information Systems and Electrical Engineering, ICITISEE 2018*, 27–31. https://doi.org/10.1109/ICITISEE.2018.8720990
2. Arnal Barbedo, J. G. (2013). Digital image processing techniques for detecting, quantifying and classifying plant diseases. *SpringerPlus*, *2*(1), 1–12. https://doi.org/10.1186/2193-1801-2-660
3. Cubuk, E. D., Zoph, B., Mane, D., Vasudevan, V., & Le, Q. V. (2018). AutoAugment: Learning Augmentation Policies from Data. *CoRR*, *abs/1805.0*. Retrieved from http://arxiv.org/abs/1805.09501
4. Das, A., Medhi, A., Karsh, R. K., & Laskar, R. H. (2016). Image Splicing Detection using Gaussian or Defocus Blur. *2016 International Conference on Communication and Signal Processing (ICCSP)*, 1237–1241. https://doi.org/10.1109/ICCSP.2016.7754350
5. Fawzi, A., Samulowitz, H., Turaga, D., & Frossard, P. (2016). Adaptive data augmentation for image classification. *Proceedings - International Conference on Image Processing, ICIP*, *2016-Augus*, 3688–3692. https://doi.org/10.1109/ICIP.2016.7533048
6. Fuentes, A., Yoon, S., Kim, S. C., & Park, D. S. (2017). A robust deep-learning-based detector for real-time tomato plant diseases and pests recognition. *Sensors*, *17*(9). https://doi.org/10.3390/s17092022
7. He, K., Zhang, X., Ren, S., & Sun, J. (2016). Deep residual learning for image recognition. *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition*.
8. Huang, G., Liu, Z., Maaten, L. van der, & Weinberger, K. Q. (2017). Densely Connected Convolutional Networks. *2017 IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2261–2269. https://doi.org/10.1109/CVPR.2017.243
9. Johannes, A., Picon, A., Alvarez-Gila, A., Echazarra, J., Rodriguez-Vaamonde, S., Navajas, A. D., & Ortiz-Barredo, A. (2017). Automatic plant disease diagnosis using mobile capture devices, applied on a wheat use case. *Computers and Electronics in Agriculture*, *138*, 200–209. https://doi.org/10.1016/j.compag.2017.04.013

10. Krell, M. M., & Kim, S. K. (2017). Rotational data augmentation for electroencephalographic data. *Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS*, 471–474. https://doi.org/10.1109/EMBC.2017.8036864
11. Krizhevsky, A., Sutskever, I., & Hinton, G. E. (2012). ImageNet Classification with Deep Convolutional Neural Networks. *Advances In Neural Information Processing Systems*, 1–9. https://doi.org/http://dx.doi.org/10.1016/j.protcy.2014.09.007
12. Kukačka, J., Golkov, V., & Cremers, D. (2017). Regularization for Deep Learning: A Taxonomy. *CoRR*, *abs/1710.1*. Retrieved from http://arxiv.org/abs/1710.10686
13. Liu, C., Liu, W., Chen, W., Yang, J., & Zheng, L. (2015). Feasibility in multispectral imaging for predicting the content of bioactive compounds in intact tomato fruit. *Food Chemistry*, *173*, 482–488. https://doi.org/10.1016/j.foodchem.2014.10.052
14. Munoz-Bulnes, J., Fernandez, C., Parra, I., Fernandez-Llorca, D., & Sotelo, M. A. (2018). Deep fully convolutional networks with random data augmentation for enhanced generalization in road detection. *IEEE Conference on Intelligent Transportation Systems, Proceedings, ITSC*, *2018-March*, 366–371. https://doi.org/10.1109/ITSC.2017.8317901
15. Omrani, E., Khoshnevisan, B., Shamshirband, S., Saboohi, H., Anuar, N. B., & Nasir, M. H. N. M. (2014). Potential of radial basis function-based support vector regression for apple disease detection. *Measurement*, *55*, 512–519. https://doi.org/10.1016/j.measurement.2014.05.033
16. OpenCv. (2014). OpenCV Library. *OpenCV Website*. https://doi.org/OpenCV
17. Park, K., Hong, Y. ki, Kim, G. hwan, & Lee, J. (2018). Classification of apple leaf conditions in hyper-spectral images for diagnosis of Marssonina blotch using mRMR and deep neural network. *Computers and Electronics in Agriculture*, *148*(February), 179–187. https://doi.org/10.1016/j.compag.2018.02.025
18. Polder, G., van der Heijden, G. W. A. M., Doorn, J. Van, & Baltissen, T. A. H. M. C. (2013). Special Issue : Image Analysis In Agriculture Automatic detection of tulip breaking virus (TBV) in tulip fields using machine vision 5. *Biosystems Engineering*, *117*, 35–42. https://doi.org/10.1016/j.biosystemseng.2013.05.010
19. Polder, G., van der Heijden, G. W. A. M., van Doorn, J., & Baltissen, T. A. H. M. C. (2014). Automatic detection of tulip breaking virus (TBV) intulip fields using machine vision. *Biosystems Engineering*, *117*(C), 35–42. https://doi.org/10.1016/j.biosystemseng.2013.05.010
20. Polder, G., van der Heijden, G. W. A. M., Doorn, J. Van, & Baltissen, T. A. H. M. C. (2013). Special Issue : Image Analysis In Agriculture Automatic detection of tulip breaking virus (TBV) in tulip fields using machine vision 5. *Biosystems Engineering*, *117*, 35–42. https://doi.org/10.1016/j.biosystemseng.2013.05.010
21. Rumpf, T., Mahlein, A. K., Steiner, U., Oerke, E. C., Dehne, H. W., & Plümer, L. (2010). Early detection and classification of plant diseases with Support Vector Machines based on hyperspectral reflectance. *Computers and Electronics in Agriculture*, *74*(1), 91–99. https://doi.org/10.1016/j.compag.2010.06.009
22. Sakai, A., Minoda, Y., & Morikawa, K. (2017). Data augmentation methods for machine-learning-based classification of bio-signals. *BMEiCON 2017 - 10th Biomedical Engineering International Conference*, *2017-Janua*, 1–4. https://doi.org/10.1109/BMEiCON.2017.8229109

23. Shah, J. P., Prajapati, H. B., & Dabhi, V. K. (2016). A survey on detection and classification of rice plant diseases. *2016 IEEE International Conference on Current Trends in Advanced Computing (ICCTAC)*, 1–8. https://doi.org/10.1109/ICCTAC.2016.7567333
24. Shijie, J., Ping, W., Peiyi, J., & Siping, H. (2017). Research on data augmentation for image classification based on convolution neural networks. *Proceedings - 2017 Chinese Automation Congress, CAC 2017*, *2017-Janua*(201602118), 4165–4170. https://doi.org/10.1109/CAC.2017.8243510
25. Szegedy, C., Vanhoucke, V., Ioffe, S., Shlens, J., & Wojna, Z. (2016). Rethinking the Inception Architecture for Computer Vision. *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition*. https://doi.org/10.1109/CVPR.2016.308
26. Talukdar, J., Biswas, A., & Gupta, S. (2018). Data Augmentation on Synthetic Images for Transfer Learning using Deep CNNs. *2018 5th International Conference on Signal Processing and Integrated Networks, SPIN 2018*, 215–219. https://doi.org/10.1109/SPIN.2018.8474209
27. Tan, D. S., Leong, R. N., Laguna, A. F., Ngo, C. A., Lao, A., Amalin, D. M., & Alvindia, D. G. (2018). AuToDiDAC: Automated Tool for Disease Detection and Assessment for Cacao Black Pod Rot. *Crop Protection*, *103*(October 2017), 98–102. https://doi.org/10.1016/j.cropro.2017.09.017
28. Vega, F. A., Ramírez, F. C., Saiz, M. P., & Rosúa, F. O. (2015). Multi-temporal imaging using an unmanned aerial vehicle for monitoring a sunflower crop. *Biosystems Engineering*, *132*, 19–27. https://doi.org/10.1016/j.biosystemseng.2015.01.008
29. Xu, Y., Zhang, Y., Wang, H., & Liu, X. (2017). Underwater image classification using deep convolutional neural networks and data augmentation. *2017 IEEE International Conference on Signal Processing, Communications and Computing, ICSPCC 2017*, *2017-Janua*, 1–5. https://doi.org/10.1109/ICSPCC.2017.8242527
30. Zhou, J., Pavek, M. J., Shelton, S. C., Holden, Z. J., & Sankaran, S. (2016). Aerial multispectral imaging for crop hail damage assessment in potato. *Computers and Electronics in Agriculture*, *127*, 406–412. https://doi.org/10.1016/j.compag.2016.06.019
31. Zhou, X., Zheng, H. B., Xu, X. Q., He, J. Y., Ge, X. K., Yao, X., … Tian, Y. C. (2017). Predicting grain yield in rice using multi-temporal vegetation indices from UAV-based multispectral and digital imagery. *ISPRS Journal of Photogrammetry and Remote Sensing*, *130*, 246–255. https://doi.org/10.1016/j.isprsjprs.2017.05.003
32. Zhu, H., Chu, B., Zhang, C., Liu, F., Jiang, L., & He, Y. (2017). Hyperspectral Imaging for Presymptomatic Detection of Tobacco Disease with Successive Projections Algorithm and Machine-learning Classifiers. *Scientific Reports*, *7*(1), 1–12. https://doi.org/10.1038/s41598-017-04501-2

The paper has been revised with the following text removed without the loss of generality.

Introduction:

- "Therefore, the use of autonomous systems such as robots that can capture and collect visual samples, drones that are able to follow a specific flight path for information aggregation are gaining popularity among farmers. In addition, the use of multi-spectral imaging, has also been successfully adopted for the identification of possible crop diseases (Rumpf et al., 2010;

S. Zhang, Wu, You, & Zhang, 2017), while other researchers use multiple spectral images (Liu, Liu, Chen, Yang, & Zheng, 2015; Park, Hong, Kim, & Lee, 2018; Polder, van der Heijden, van Doorn, & Baltissen, 2014). Following the popularity and high-quality of visual information captured from handheld devices, such as smart phones computer vision algorithms have been developed for processing visual information for the identification of pests (Avendano, Ramos, & Prieto, 2017; Johannes, Picon, et al., 2017). Complementary research based on the visual information obtained from drones and other UAV flights have been analysed for predicting the crop yield (X. Zhou et al., 2017) and early sign of disease (J. Zhou, Pavek, Shelton, Holden, & Sankaran, 2016)."

- "As the cultivation areas is experiencing constant growth to meet the market demands the information aggregated from the farming community is also exponentially increasing. Despite the advancements in the field of machine learning and deep-learning for multi-object classification, the requirement of large-amounts of data for developing an efficient training models constraint the application of such algorithms for pest classification, due to the lack of high-quality annotated datasets. In addition, as pests also evolve and are dependent upon the environmental effects, it is important to develop datasets that are represented in the real-world considering the appearance of the pests due to seasonal changes. "

As suggested by the editor, the trivial equations included in the paper have been deleted along with the associated explanations.

> "The approach presented in the literature can be broadly classified into (i) image-based data augmentation techniques and (ii) deep-learning architectures that inherent extend the ability of generalisation through network architectures. A range of improvements presented in the literature addressing the improvements in the network architecture include, AlexNet (Krizhevskya et al., 2012) to VGG-16 (Simonyan and Zisserman, 2014), ResNet (He et al., 2016), Inception-V3 (Szegedy et al., 2016), and DenseNet (Huang et al., 2017). These network models adopt various functional solutions such as dropout regularization, batch normalization, transfer learning, and pretraining have been developed to try to extend Deep Learning for application on smaller datasets. A complete survey of regularization methods in Deep Learning has been compiled by Kukacka et al. (Kukačkaa et al., 2017). It is important to note that, these approaches have been successfully applied on general purpose datasets, that represent multi-object classification of every-day classes."

Similarly, the well-known computer vision algorithms have also been revised with the following sections eliminated. Instead, the current description only contains a reference to the parameter ranges applied to the equations as made available through OpenCV library which have been used in data augmentation process.

- *Flipping*: The process generates a mirror-image of the original input. The use of horizontal axis flipping has been reported to generate additional generalisation rather than flipping across vertical axis. This augmentation process is also one of the easiest to implement and has been successfully adopted within the CIFAR-10 and ImageNet datasets.
- *Colour Space*: The augmentation process treats the input image as a isolated image resulting in the number of colour channels used to represent the image. In the

traditional context, an image represented by RGB will result in three images containing the values of each colour channels with the rest of the channels treated as '0'. In addition, the data augmentation process also facilitates the use of increasing and decreasing the brightness of an image.

- *Cropping*: The process of cropping results in the generation of various sub-parts of an image which could be used to train the network not on the whole object representation but on the building blocks of the parts.
- *Rotation*: The process of rotation is carried out either through counter or anti-counter clockwise direction with rotation degree set between 1' to 359'. The safety of the rotation augmentations is heavily relied on the rotation degree parameter. Slight rotations such as between 1 and 20 or -1 to -20 degrees has been proven to be useful for digit recognition tasks but as the rotation degree increases, it is observed that the annotation label could no longer be preserved post-transformation.
- *Translation*: The process of translation aims to shift the image to minimise the positional bias of the object present in the data. As an instance, the translation process has been applied for facial recognition tasks in which it is expected that the face of the subject can also appear away from the centre and hence training of the network for various positional determination is crucial.
- *Noise injection*: The data augmentation process includes the injection of a matrix of random values created by through Gaussian distribution. It has been reported that adding noise to image can enhance the robustness of the features learnt by CNNs.
- *Colour space transformation*: One of the common occurrences in the field of computer vision dataset is the dependency of the images upon the environmental changes to illumination. The presence of lighting biases is amongst the most frequently occurring challenges to image recognition problems. Therefore, the effectiveness of the colour transformation, also referred to as photometric transformations is one of the augmentation processes that needs to be addressed. The data augmentation process relies on the overlay of the bright or dark images upon the images and introduce these images for the training.

A more detailed and exhaustive list of various data augmentation techniques has been presented in the survey paper published in (Shorten & Khoshgoftaar, 2019). Data augmentation data has been implemented in many classification object such as electroencephalographic (Krell & Kim, 2017), bio signals (Sakai, Minoda, & Morikawa, 2017), underwater images (Xu, Zhang, Wang, & Liu, 2017), road images (Munoz-Bulnes, Fernandez, Parra, Fernandez-Llorca, & Sotelo, 2018), synthetic images (Talukdar, Biswas, & Gupta, 2018), batik images (Agastya & Setyanto, 2019) and also plant images (Kobayashi, Tsuji, & Noto, 2019). Within the context of agriculture, the application of data augmentation techniques for improving the overall quality of the multi-class pest recognition system has been addressed by several researchers including (Fawzi, Samulowitz, Turaga, & Frossard, 2016), (Shijie, Ping, Peiyi, & Siping, 2017). Despite these publications, the challenge of pest recognition that affects Mango cultivation in the Indonesian region remains an open problem.

The following paragraphs have been replaced:

"Following the recent innovations reported in the field of deep-learning and machine learning algorithms, a limited number of articles have been published addressing the challenge of pest detection based on the image processing. One of the early reports in the literature included the study multi-spectral imaging solutions for the detection of pests and diseases considered the analysis of both visible and infrared bands (Arnal Barbedo, 2013). Since then, the cost of data set creation using multi-spectrum imagery has been identified as a limitation for the widescale deployment of pest recognition systems, as the appearance of pests is localized to regional, environmental and the type of tree that will be affected by pest infestation (Liu et al., 2015)(Park et al., 2018). In complementary to multi-spectral imaging, the use of Unmanned Aerial Vehicles (UAV) has also been used to gather large-scale visual surveillance of agriculture crops. The captured images has been subsequently processed to estimate the yield of the farm and in the process identify any health problems affecting the crops (X. Zhou et al., 2017)(Vega, Ramírez, Saiz, & Rosúa, 2015). Both types of images, both multi-spectrum and multi-temporal UAV images, require high-cost solutions. In contrast to the use of multi-spectral imaging, the cost of capturing visible scale images using low-cost visible sensors has been identified as a suitable alternative. As such, the use of handheld devices including smart phones and tablets have been increasingly receiving acceptance among farmers for collection of information and subsequent processing (S. Zhang et al., 2017)(Shanwen Zhang, Huang, & Zhang, 2018). The study of pests affecting the plants has been the areas of study for many researchers and in particular the use of images captured from smartphones has been accepted by farmers (Johannes, Seitz, & Se, 2017) and (Tan et al., 2018).s Following the wide-scale data aggregation from the fields, the application of statistical tools and machine learning algorithm for the classification of multi-class pests has been reported in the literature including the use of Support Vector Machine (SVM) (Zhu et al., 2017)(Avendano et al., 2017), Neural networks (Srdjan Sladojevic, Marko Arsenovic, Andras Anderla, 2016)(Omrani et al., 2014), deep learning (Lu, Yi, Zeng, Liu, & Zhang, 2017)(Mohanty, Hughes, & Salathé, 2016)(Fuentes, Yoon, Kim, & Park, 2017) among others.

Subsequent to the increasing popularity of deep-learning network models that have been applied across other critical domains such as medical, object classification, the use of deep-learning algorithms has been proposed in the literature for the classification of pests (Mohanty et al., 2016) with results reported in a classification with a fairly good level of accuracy at 99.35% of the 26 types of plant diseases commonly affecting approximately 14 agricultural commodities. In particular, the use of Convolution Neural Network (CNN) for the classification of plant diseases affecting rice produce has been examined by Lu 2017 (Lu et al., 2017). In the study authors report that, the type of disease was limited to 10 types of diseases that most often attacked rice and produced an accuracy of 95.48%. In the context of agriculture, the number of cultivated plants vary in their origin along with environmental impact on climate and other parameters. The evaluation of the pest and disease classification techniques as reported in the literature considers a limited type of classes that are detected. For example (Omrani et al., 2014)(S. Zhang et al., 2017)(Polder et al., 2014)(Polder, van der Heijden, Doorn, & Baltissen, 2013)(Shah, Prajapati, & Dabhi, 2016) presented the research formulated to detect pests and diseases affecting only one type of apples, cucumbers, tulips, and rice”

With

“Following the recent innovations reported in the field of deep-learning and machine learning algorithms, a limited number of articles have been published addressing the challenge of pest detection based on the image processing.

The cost of capturing visible scale images using low-cost visible sensors has been identified as a suitable for detecting pest. As such, the use of handheld devices including smart phones and tablets have been increasingly receiving acceptance among farmers for collection of information and subsequent processing (Zhang, Wu, You, & Zhang, 2017). The study of pests affecting the plants has been the areas of study for many researchers and in particular the use of images captured from smartphones has been accepted by farmers (Johannes, Seitz, & Se, 2017). Following the wide-scale data aggregation from the fields, the application of statistical tools and machine learning algorithm for the classification of multi-class pests has been reported in the literature including the use of Support Vector Machine (SVM) (Avendano, Ramos, & Prieto, 2017), Neural networks (Srdjan Sladojevic, Marko Arsenovic, Andras Anderla, 2016), deep learning (Lu, Yi, Zeng, Liu, & Zhang, 2017)(Mohanty, Hughes, & Salathé, 2016) among others.

Subsequent to the increasing popularity of deep-learning network models that have been applied across other critical domains such as medical, object classification, the use of deep-learning algorithms has been proposed in the literature for the classification of pests (Mohanty et al., 2016) with results reported in a classification with a fairly good level of accuracy at 99.35% of the 26 types of plant diseases commonly affecting approximately 14 agricultural commodities. In particular, the use of Convolution Neural Network (CNN) for the classification of plant diseases affecting rice produce has been examined by Lu 2017 (Lu et al., 2017). In the study authors report that, the type of disease was limited to 10 types of diseases that most often attacked rice and produced an accuracy of 95.48%. In the context of agriculture, the number of cultivated plants vary in their origin along with environmental impact on climate and other parameters. The evaluation of the pest and disease classification techniques as reported in the literature considers a limited type of classes that are detected. For example (Zhang et al., 2017) presented the research formulated to detect pests and diseases affecting only one type of apples, cucumbers, tulips, and rice.”

Also, the following redundant paragraph has been removed

“In addition to data augmentation, it is also vital to ensure that the labels associated to the post-augmented data holds validity semantically in order to ensure that the training process adopted results in a positive outcome without enabling conflicting data sources to the deep-learning network. In the literature related to data augmentation, this process is often referred to as ‘safety’ of an augmentation. The constraints that are to be considered for the safety of the augmented data relies on the dependence of the domain knowledge and thus requires an expert knowledge to validate the post-augmented labels to contain the same labels as the pre-augmented data. The challenge as reported in the literature relates to the development of the generalizable augmentation policies, see Auto-Augment (Cubuk et al., 2018) for further exploration into finding generalizable augmentations). The selection of the data augmentation process and the sequence construction for building upon the augmentation pipeline relies on preserving the semantics of the labels for pest infestation as encountered within the Mango cultivation. Upon the development of successful data augmentation policies, it has bene reported that the overall performance of deep learning classification process has yielded improved accuracy on the modelling the complex problem of generalization (Shijie et al., 2017), and thus in the rest of the section, a detailed outline of the data augmentation framework implemented for improving the training quality of the deep-learning network has been outlined."

Finally, as we expect the contribution of the research presented in the paper to benefit both agriculture and computer vision experts, the draft has been prepared to ensure readability for researchers from both scientific areas. Also, each of the description of data augmentation process is reported with the parameters used to generate the dataset that supports reproducible research.

Kusrini Kusrini <kusrini@amikom.ac.id>

Your manuscript COMPAG_2019_1984_R3 has been accepted

John Schueller (Computers and Electronics in Agriculture) Thu, Oct 15, 2020 at 10:22 PM
<EviseSupport@elsevier.com>
Reply-To: schuejk@ufl.edu
To: kusrini@amikom.ac.id

Ref: COMPAG_2019_1984_R3
Title: Data Augmentation for Automated Pest Classification in Mango Farms
Journal: Computers and Electronics in Agriculture

Dear Dr. Kusrini,

I am pleased to inform you that your paper has been accepted for publication.

Your accepted manuscript will now be transferred to our production department. We will create a proof which you will be asked to check. You can read more about this here. Meanwhile, you will be asked to complete a number of online forms required for publication. If we need additional information from you during the production process, we will contact.

Thank you for submitting your work to Computers and Electronics in Agriculture. We hope you consider us again for future submissions.

Kind regards,

John Schueller
Editor-in-Chief
Computers and Electronics in Agriculture

Have questions or need assistance?
For further assistance, please visit our Customer Support site. Here you can search for solutions on a range of topics, find answers to frequently asked questions, and learn more about EVISE® via interactive tutorials. You can also talk 24/5 to our customer support team by phone and 24/7 by live chat and email.

Kusrini Kusrini <kusrini@amikom.ac.id>

Reviews complete and decision pending for your manuscript COMPAG_2019_1984

Computers and Electronics in Agriculture <EviseSupport@elsevier.com> Wed, Dec 11, 2019 at 4:12 AM
Reply-To: compag@elsevier.com
To: kusrini@amikom.ac.id

Reference: COMPAG_2019_1984
Title: A Machine Learning Technique for Accurate Pest Identification in Mango Farms
Journal: Computers and Electronics in Agriculture

Dear Dr. Kusrini,

I am pleased to inform you that I have received all the required reviews, which I will now evaluate before making a decision on your manuscript referenced above.

In the event that I need to seek the opinion of an additional reviewer, you may see the status of your manuscript revert briefly from 'Ready for Decision' to 'Under Review'.

To track the status of your manuscript, please log into EVISE® http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=COMPAG and go to 'My Submissions'.

I will inform you once I have made a decision.

Thank you again for submitting your manuscript to Computers and Electronics in Agriculture and for giving me the opportunity to consider your work.

Kind regards,

Computers and Electronics in Agriculture

Have questions or need assistance?
For further assistance, please visit our Customer Support site. Here you can search for solutions on a range of topics, find answers to frequently asked questions, and learn more about EVISE® via interactive tutorials. You can also talk 24/5 to our customer support team by phone and 24/7 by live chat and email.

UNIVERSITAS AMIKOM YOGYAKARTA

Kusrini Kusrini <kusrini@amikom.ac.id>

Track your article [COMPAG_105842] accepted in Computers and Electronics in Agriculture

Elsevier - Article Status <Article_Status@elsevier.com> Fri, Oct 16, 2020 at 12:05 AM
To: kusrini@amikom.ac.id

Please note this is a system generated email from an unmanned mailbox.
If you have any queries we really want to hear from
you via our 24/7 support at http://help.elsevier.com

Article title: Data Augmentation for Automated Pest Classification in Mango Farms
Reference: COMPAG_105842
Journal title: Computers and Electronics in Agriculture
Article Number: 105842
Corresponding author: Dr. Kusrini Kusrini
First author: Dr Kusrini Kusrini
Dear Dr. Kusrini,

Your article Data Augmentation for Automated Pest Classification in Mango Farms will be published in Computers and Electronics in Agriculture.

To track the status of your article throughout the publication process, please use our article tracking service:

https://authors.elsevier.com/tracking/article/details.do?aid=105842&jid=COMPAG&surname=Kusrini

For help with article tracking: http://help.elsevier.com/app/answers/detail/a_id/90

Yours sincerely,
Elsevier Author Support

Toggle navigation ELSEVIER

- Log In
- Register
- Help

- Edit Details
- Change Password
- Logout

Track Your Accepted Article

The easiest way to check the publication status of your accepted article

ISSN 0168-1699

Data Augmentation for Automated Pest Classification in Mango Farms

Article reference
COMPAG_105842
Journal
Computers and Electronics in Agriculture
Corresponding author
Kusrini Kusrini
First author
Kusrini Kusrini
Received at Editorial Office
21 Oct 2019
Article revised
2 Oct 2020
Article accepted for publication
15 Oct 2020

Last update: 15 Oct 2020

Share via email

Bibliographic information

Volume/Issue
Will appear soon
Full bibliographic details
Will appear soon
Article available online
Will appear soon

[Get your Stats on Mendeley]

[Track another article]

Status comment

- Your article has been received for production.

Production events

Date	Event	Help
15 Oct 2020	Received for production	

Complimentary items

- You are entitled to a Share Link for your article free of charge. The Share Link will be sent you as soon as the final article is published in an issue.

[Track another article]

×

Share via email

Data Augmentation for Automated Pest Classification in Mango Farms

Sender's name
Sender's email address
Recipient's email address
Use semi colons to separate multiple recipients

Subject Track article COMPAG_1058

I thought you would find the tracking information about this article useful.

Message

Send

×

Track your accepted article

Our reference:
Author surname:
Please use the corresponding author.

Track Article

×

Toggle navigation ELSEVIER

- Log In
- Register
- Help

- Edit Details
- Change Password
- Logout

Track Your Accepted Article

The easiest way to check the publication status of your accepted article

ISSN 0168-1699

Data Augmentation for Automated Pest Classification in Mango Farms

Article reference
    COMPAG_105842
Journal
    Computers and Electronics in Agriculture
Corresponding author
    Kusrini Kusrini
First author
    Kusrini Kusrini
Received at Editorial Office
    21 Oct 2019
Article revised
    2 Oct 2020
Article accepted for publication
    15 Oct 2020

Last update: 22 Oct 2020

Share via email

Bibliographic information

Volume/Issue
179C
Full bibliographic details
Computers and Electronics in Agriculture 179C (2020) 105842
Article available online
Will appear soon

Get your Stats on Mendeley

Track another article

Status comment

- Full bibliographic details are now available to cite your article. You will be alerted by email when the final version of your article (including full bibliographic details) has been published online.
- No further corrections can be made to your proof at this stage.

Production events

Date	Event	Help
22 Oct 2020	Your proof corrections have been returned to Elsevier	
22 Oct 2020	Proofs available for checking	
22 Oct 2020	Rights & Access form completed by you	
22 Oct 2020	Colour order form completed by you	
22 Oct 2020	Offprint order form completed by you	
18 Oct 2020	Rights & Access form sent to you for completion	
18 Oct 2020	Colour order form sent to you for completion	
18 Oct 2020	Offprint order letter sent to you for completion	
15 Oct 2020	Received for production	

Complimentary items

- You are entitled to a Share Link for your article free of charge. The Share Link will be sent you as soon as the final article is published in an issue.

Track another article

×

Share via email

Data Augmentation for Automated Pest Classification in Mango Farms

Sender's name
Sender's email address
Recipient's email address
Use semi colons to separate multiple recipients

Subject Track article COMPAG_1058

I thought you would find the tracking information about this article useful.

Message

Send

×

Track your accepted article

Our reference:
Author surname:
Please use the corresponding author.

Track Article

×

RELX Group™