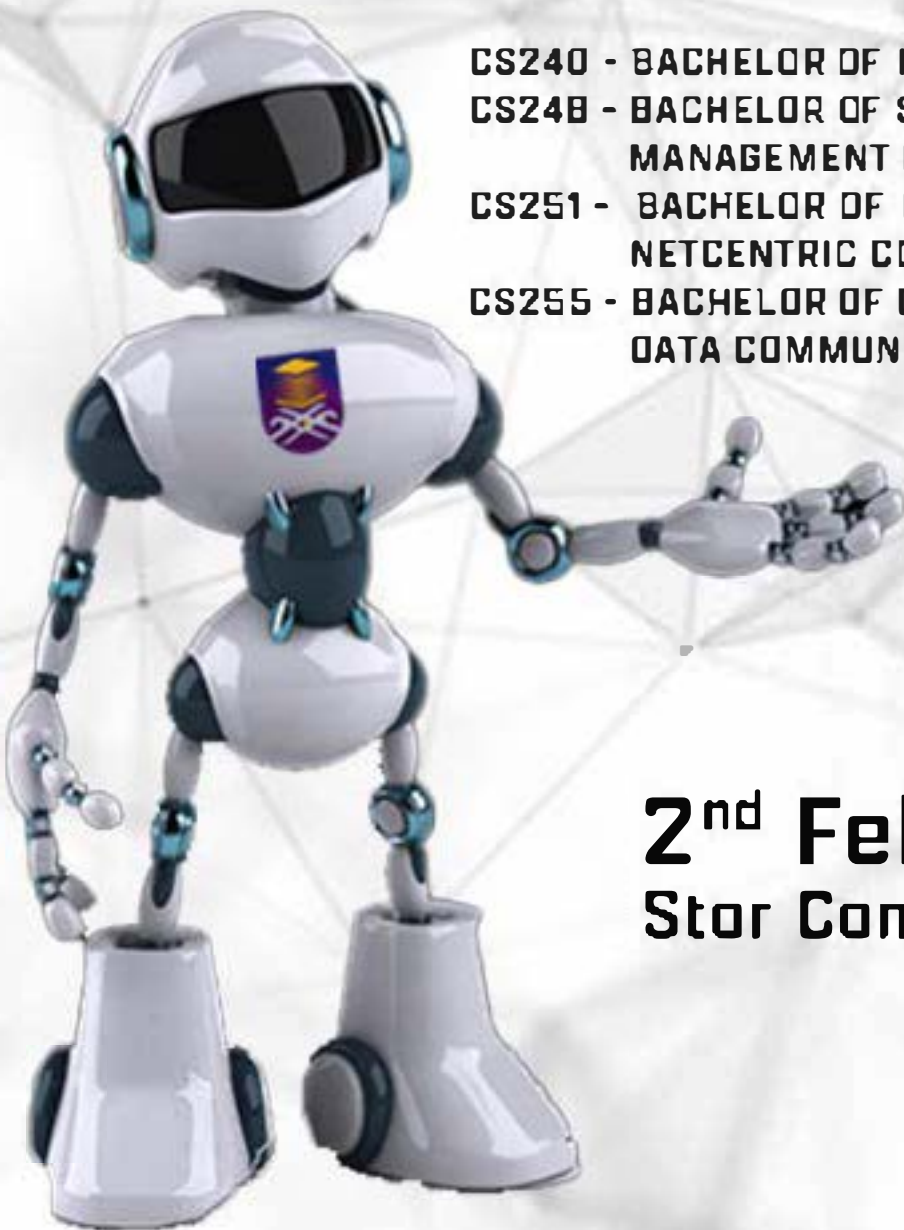

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

REMACS 5.0



CS240 - BACHELOR OF INFORMATION TECHNOLOGY [HONS.]
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2nd February 2023
Stor Complex, UiTM Perlis

Organized by:
College of Computing, Informatics and Media
Universiti Teknologi MARA Perlis Branch

**Research Exhibition in Mathematics and Computer Sciences
(REMACS 5.0)**

Research Exhibition in Mathematics and Computer Sciences (REMACS 5.0)

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Rafiza Ruslan, Mohamad Najib Mohamad Fadzil, Noorfaizalfaird Mohd Nor, Mohammad Hafiz bin Ismail

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Preface

It is with great pleasure that we present this extended abstract book, titled "The 5th Research Exhibition in Mathematics and Computer Sciences (REMACS 5.0)". This book is a collection of research work in the fields of Computer Science and Mathematics, contributed by the final year students from Universiti Teknologi MARA, Perlis Branch. The aim of this book is to showcase the diversity and depth of research in these two interrelated fields.

Mathematics and Computer Science are two fields that have seen tremendous growth and advancement in recent years. With the rise of new technologies and the increasing demand for data-driven solutions, researchers in these fields have been working hard to develop new theories, algorithms, and models that can help solve some of the most pressing problems of our time. This book is a testament to their hard work and dedication.

The abstracts in this book cover a wide range of topics, including algebra, analysis, logic, computer architecture, algorithms, artificial intelligence, machine learning, computer network, netcentric computing and many more. The work presented here is both theoretical and practical, and has the potential to impact many areas of society, from finance and healthcare to education and security.

We hope that this book will serve as a valuable resource for future students in the fields of Mathematics and Computer Science. We also hope that it will inspire more students to pursue innovative and groundbreaking research in these two fields. Finally, we would like to express our gratitude to all the contributors for their hard work and dedication, without which this book would not have been possible.



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REMACS 5.0

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EVENT SCHEDULE

8:00 – 8:30 am

- Registration

8:00 am – 12:00 pm

- FYP Project Presentation

12:00 - 2:00pm

- Lunch Break

2:15 – 2:35 pm

- National & Wawasan Setia Anthems
- Doa Recitation

2:35 – 2:45 pm

- Welcoming Address by Director of REMACS 5.0

2:45 – 2:55 pm

- Officiating & Closing Remarks from Rector of UiTM Perlis

2:55 – 3:00 pm

- REMACS 5.0 Montage

3:00 – 4:00 pm

- Awarding of Winners:
 - Best Poster
 - Best Project Award

- Photo Session

- End of Ceremony

Dress Code: Formal / Corporate

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EXTENDED ABSTRACTS

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES
REMACS 5.0

PINEAPPLE DISEASE DETECTION SYSTEM USING MOBILENETV2 MODEL

Muhammad Nu'man Hakim Abdul Aziz, Iman Hazwam Abd Halim

College of Computing, Informatics and Media, Universiti Teknologi MARA Perlis Branch, Malaysia

Abstract

Disease in plant has been a major challenging factor for agricultural field. To counter this problem a quick and accurate model could help in detecting plant disease. This project focus on pineapple disease detection using deep learning. Deep learning is a branch of machine learning that teaches computers to do what comes naturally to humans: learn from experience. Deep learning is especially suited for image recognition, which is important for solving problems such as facial recognition, motion detection. As the method that going to be use for the disease detection an advance system that going to be use for this project is Neural Network. Since this project is going to use image classification convolutional neural network is going to be use since it was a type of artificial neural network that usually being used in image recognition that specifically for processing pixel data. Since the dataset that going to be used is based on picture that being capture then it was suitable for this project. The goal of this project is to test the dataset of pineapple disease with Convolutional Neural Network by using MobileNetV2 model architecture through mobile app to classify and identify pineapple fruit diseases. This project dataset is trained by using large dataset that have different type of pineapple disease and healthy image of pineapple. Lastly this project is going to test the accuracy of the proposed system in detecting Pineapple fruit disease by using Mobilenetv2 model architecture.

Keywords: Deep Learning, Convolutional Neural Network, Pineapple fruit disease

1. Introduction

This project aims to test the dataset of pineapple disease with Convolutional Neural Network by using MobileNetV2 model architecture through mobile app to classify and identify pineapple fruit diseases. The app will be tested for accuracy in detecting pineapple diseases and will be used by UiTM Perlis farmers to identify the diseases in their pineapples. The app will be developed using Python and will be tested to ensure it meets its objectives. The app will scan the image of pineapple and match it with the images in the data set to identify the symptoms of the disease. The goal is to make it easier for farmers to identify and treat pineapple diseases.

2. Methodology

Every dataset that going to be trained will be collect and being sort in different folder based on disease symptoms. MobileNetV2 model going to be remodel based on image size that going to be trained to get the proper accuracy. When all the data have been sorted accuracy test will be done based on the dataset that being collected for the Machine to learning each disease. When all data set that being train have acquired high accuracy then a mobile application going to be developed to test the model accuracy in mobile application implementation.

3. Results and Discussion

Based on the testing that is done from the training data set every data set gives a high accuracy if the image that is being trained is high quality and does not blur. The accuracy of the model will be measured using metrics such as precision, recall and loss. Factors that may have affected the model's performance, such as the size and quality of the dataset, will also be discussed. Based on training that has been done

from 3,098 images from all types of disease the MobileNetV2 model can give 97% of accuracy to identify each disease type. With all types of testing being done it can be concluded the more image that is being trained the higher the model accuracy can get for prediction the disease type.

4. Novelty of Research

The novelty of this research is in the application of using MobileNetV2 model architecture for image classification to identify pineapple fruit diseases. The use of CNNs in agriculture, specifically for identifying plant diseases is an area that has not been widely explored. For instance, a study by (Hao, et al. 2018) proposed a CNN-based method for identifying plant diseases using leaf images, but the study focused on 14 different types of plants. In comparison, this research is focused specifically on pineapple fruit diseases. The development of a mobile app for this purpose will also make the technology more accessible and user-friendly for farmers. Furthermore, this research is focusing on the pineapple plant disease specifically, which will be beneficial to the pineapple farmers in UiTM Perlis. The proposed system will provide an efficient, fast, and accurate method for identifying pineapple diseases which can help farmers to take early actions to prevent the spread of the diseases, thus increasing the yield and productivity of pineapple.

5. Conclusion

The proposed system has provide an efficient, fast, and accurate method for identifying pineapple diseases. Results that being evaluated in mobile application is also a success since it give the accurately. With this all of objective that being proposed in this project have been achieved.

REFERENCE LIST

Hao, J., & Wang, L. (2018). Plant Disease Identification Using Convolutional Neural Networks.

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