
RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

REMACS 5.0



CS240 - BACHELOR OF INFORMATION TECHNOLOGY [HONS.]
CS248 - BACHELOR OF SCIENCES [HONS.]
MANAGEMENT IN MATHEMATICS
CS251 - BACHELOR OF COMPUTER SCIENCE [HONS]
NETCENTRIC COMPUTING
CS255 - BACHELOR OF COMPUTER SCIENCE [HONS]
DATA COMMUNICATION & NETWORKING

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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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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.



RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES
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

FAKE NEWS CLASSIFICATION USING MACHINE LEARNING TECHNIQUES

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Abstract

The amounts of information, particularly text data, grows at an exponential rate as more and more time passes. Along with the data, our knowledge of machine learning also advances, and the additional processing power allows us to rapidly train models that are both highly sophisticated and very extensive. Recently, there has been a lot of emphasis focused on fake news across the globe. The impacts may be political, economic, organisational, or even personal. In this work, the technique of machine learning is broken down and discussed in an effort to overcome this challenge. The use of a TF-IDF vectorizer and the training of the data on three different classifiers in order to determine which one of them performs particularly well for this particular dataset of labelled news statements. The ratings for accuracy, recall, and F1-score assist us in determining which model performs the most effectively.

Keywords: machine learning, fake news, classifiers

1. Introduction

The objective of this project is to perform classification that employs machine learning techniques to identify between fake and real news based on feature-related data. The challenges considered for this classification is meant to aid users in deciding which algorithm is more effective for predicting false and true news. By applying suitable algorithms, the classification algorithms may provide more precise results based on the acquired data. Decision Tree, Passive Aggressive, and Logistic Regression are among the algorithms used to produce the outcomes of the categorization of fake and real news.

2. Methodology

The first step is to assess the issue statement to better comprehend the problem's cause. Reading and gathering data from digital publications, as well as performing research, are among the strategies utilised to get information on the mentioned topics. Developers search for datasets that correspond to the study's title on websites and platforms such as Kaggle. After identifying the suitable dataset, the acquired data was examined in Microsoft Excel in CSV format to check its suitability for usage. In addition, these data were converted into a data type usable in the Python programming language. After the data has been pre-processed, TfidfVectorizer is used to turn text data into a numerical format so that it may be used and read by Python programming languages. The data were then trained using machine learning methods and algorithms such as Logistic Regression, Decision Tree, and Passive Aggressive classifiers. All of these models were developed using Python and the Jupyter Notebook application. In this step, the output of machine learning models was compared using several sorts of calculations, such as the confusion matrix, to measure their correctness.

3. Results and Discussion

This research concentrates on the techniques used for analysis of data. Several outcomes provided after data analysis may be utilised as a guide and solution to assist individuals or end users in facing and creating early expectations about an issue. Overall, it is anticipated that this initiative would aid stakeholders in finding answers to their problems. Effectiveness and efficiency are two of the most important aspects of the procedure used to distinguish between fake news and true news. Utilizing the

most effective and efficient algorithm evaluated to identify false news, more projects may be developed using the outcome of this study.

4. Novelty of Research / Product

Several studies have explored how Voting Ensemble Classifier may be used to identify fake news (Reshmi & Raja S, 2022). In addition, there have been several research on identifying fake news using Support Vector Machine, Naive Bayes, and LSTM (Jain et al., 2022). In addition, there is research on modelling the identification of fake news using BERT-CNN-BiLSTM Architecture (Alghamdi et al., 2022). Nonetheless, one of the studies used deep learning to identify fake news (Lu et al., 2022).

5. Conclusion

As it becomes simpler to convey information to the public in several forms, the threat presented by fake news is severe and spreading like wildfire. We can control and prevent the spread of misinformation more quickly and efficiently with the use of machine learning than with human effort alone.

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