

Generative AI

A Project Report

submitted in partial fulfillment of the requirements

of

Master Trainer for Software Developer

by

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Under the Esteemed Guidance of

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Sincerely,

Rabari Priyam Ashokbhai (210841102044)

ABSTRACT

- In an era where misinformation spreads rapidly through various media channels, the need for effective fake news detection has become paramount. This project aims to develop a comprehensive approach leveraging technology to combat misinformation and promote information integrity. Through this endeavour, we seek to enhance the trustworthiness of online information and contribute to the fight against fake news.

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CHAPTER 1

INTRODUCTION

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1.1. Problem Statement:

Fake news, defined as deliberately false or misleading information presented as news, poses significant challenges to society. It undermines public trust, distorts public discourse, and can even have real-world consequences. The sheer volume and rapid dissemination of fake news make it difficult to discern fact from fiction, highlighting the urgent need for reliable fake news detection methods.

1.2. Problem Definition:

In today's digital age, the proliferation of fake news has emerged as a significant societal challenge, undermining the integrity of information and eroding public trust in media sources. Fake news, defined as deliberately false or misleading information presented as news, poses a threat to democracy, public discourse, and individual decision-making. The rapid dissemination of fake news through online platforms and social media channels exacerbates its impact, leading to widespread confusion, polarization, and social unrest.

The primary problem addressed by this project is the need for effective mechanisms to detect and combat fake news in digital media environments. Traditional methods of news verification and fact-checking are often inadequate to cope with the scale and speed of misinformation propagation, necessitating the development of automated solutions powered by artificial intelligence and machine learning techniques. By leveraging advanced algorithms and natural language processing capabilities, fake news detection systems aim to identify and mitigate the spread of fake news, thereby promoting information integrity, media literacy, and trust in online information sources.

1.3. Expected Outcomes:

Accuracy Detection: The fake news detection model integrated into the statistics web app is expected to achieve a classification accuracy of over 90% on both training and test datasets. This high accuracy ensures reliable identification of fake news articles.

Fake News Detector

Enter news Article

Figure 1.3.1

```
# prediction system
```

```
input_data = X_test[20]
```

```
prediction = model.predict(input_data)
```

```
if prediction[0] == 1:
```

```
    print('Fake news')
```

```
else:
```

```
    print('Real news')
```

2]

• Fake news

```
news_df['content'][20]
```

3]

• 'news hope gop nude paul ryan emerg ayahuasca tent vision new republican parti'

Figure 1.3.2

Fake News Detector

Enter news Article

'news hope gop nude paul ryan emerg ayahuasca tent vision new republican parti'

Figure 1.3.3

Fake News Detector

Enter news Article

'news hope gop nude paul ryan emerg ayahuasca tent vision new republican parti'

The News is Fake

Figure 1.3.4

1.4. Organization of the Report

- **Introduction:** Provides an overview of the project, including the significance of fake news detection, objectives, and scope.
- **Literature Review:** Reviews existing research and literature on fake news detection methods, algorithms, and technologies. Discusses relevant studies, approaches, and challenges in the field.
- **Methodology:** Describes the methodology used in the project, including data collection, preprocessing, feature extraction, machine learning algorithms, and evaluation metrics.
- **Implementation:** Details the implementation of the fake news detection system, including the development of algorithms, integration of libraries/frameworks, and creation of the user interface.
- **Results and Analysis:** Presents the results of the fake news detection system, including accuracy, precision, recall, and other evaluation metrics. Analyzes the performance of the system and discusses key findings.
- **Discussion:** Provides a discussion of the findings, including strengths, limitations, and implications of the fake news detection system. Explores potential areas for improvement and future research directions.
- **Conclusion:** Summarizes the key findings and contributions of the project. Reflects on the significance of the fake news detection system and its impact on addressing misinformation.
- **References:** Lists all the references cited in the report, including research papers, articles, books, and online resources.
- **Appendices:** Includes any supplementary material, such as code snippets, data samples, and additional analyses, that support the findings of the report.

CHAPTER 2

PROPOSED METHODOLOGY

CHAPTER 2

PROPOSED METHODOLOGY

2.1 Advantages

- **Comprehensive Functionality:** The code combines multiple generative AI features into a single web app, offering a wide range of capabilities for users.
- **User-Friendly Interface:** The web app is built with Streamlit, providing a user-friendly and intuitive interface that is accessible to users with varying technical backgrounds.
- **State-of-the-Art Models:** The code utilizes state-of-the-art generative AI models from Google, ensuring accurate and high-quality results. Integrates with Google's knowledge base, enabling access to a vast amount of information and comprehensive answers. Utilizes the "gemini-pro" model, known for its advanced language generation capabilities and ability to engage in natural conversations.
- **Customizable:** The code allows for customization of the generative AI models and prompt templates, enabling users to tailor the web app to their specific needs. Leverages the "gemini-pro-vision" model, specifically designed for image captioning, providing accurate and descriptive captions. Employs the "stuff" chain type, which is optimized for extracting information from document-based contexts.
- **Community Support:** The project leverages open-source libraries and resources from the Langchain community, ensuring ongoing support and contributions.

2.2 Requirement Specification

2.2.1 Hardware Requirements:

Hardware Requirements	Description
Processor	Multi-core processor with a clock speed of 2.0 GHz or higher for efficient computation.
GPU	Dedicated graphics card with 4 GB or more of VRAM recommended
RAM	Minimum 8GB RAM for basic AIML tasks; 16GB or more recommended for complex models and larger datasets.
Storage	Solid State Drive (SSD) with at least 256GB storage capacity recommended.
Network Connection	High-speed internet connection with low latency for accessing cloud platforms, downloading datasets, and collaborating on projects.

2.2.2 Software Requirements:

Software Requirements	Description
Operating System	Windows 10 or 11, macOS 10.15 or later, or Ubuntu 18.04 or later
Programming Language	Python or R for data analysis and machine learning tasks.
Integrated Development Environment (IDE)	PyCharm, Jupyter Notebook, VS Code
Machine Learning Libraries	Langchain, PyPDF2, FAISS, google-generativeai, streamlit-option-menu, streamlit, pillow, python-dotenv, langchain_google_genai
Web Development Frameworks (Optional)	Flask or Streamlit /HTML/CSS/JavaScript for frontend. Langchain, PyPDF2, FAISS for backend.
Deployment Platforms	Amazon Web Services (AWS), Microsoft Azure for deploying machine learning models.
Version Control	Git for version control; GitHub, GitLab, Bitbucket for hosting repositories.

CHAPTER 3

IMPLEMENTATION AND RESULT

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IMPLEMENTATION AND RESULT

Fake News Detector

Enter news Article

Figure 4.1 Fake Naws Detector

```
# prediction system

input_data = X_test[20]
prediction = model.predict(input_data)
if prediction[0] == 1:
    print('Fake news')
else:
    print('Real news')
```

2] Fake news

```
news_df['content'][20]
```

3] 'news hope gop nude paul ryan emerg ayahuasca tent vision new republican parti'

Figure 4.2 Copy The Naws

Fake News Detector

Enter news Article

'news hope gop nude paul ryan emerg ayahuasca tent vision new republican parti'

Figure 4.3 Paste The Naws

Fake News Detector

Enter news Article

'news hope gop nude paul ryan emerg ayahuasca tent vision new republican parti'

The News is Fake

Figure 4.4 See The Naws Fake Or Real

CHAPTER 4

CONCLUSION

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CONCLUSION

In conclusion, our project represents a significant step forward in the fight against fake news. By combining advanced technologies with a robust system architecture, we have developed a reliable solution for detecting misinformation and promoting information integrity. Moving forward, we remain committed to enhancing our system's capabilities, addressing emerging challenges, and collaborating with stakeholders to combat the spread of fake news effectively.

CHAPTER 5

FUTURE SCOPE

CHAPTER 5

FUTURE SCOPE

Integrating additional generative AI models. Adding new categories features to perform various other task. Image and Video Generation. Explore advanced NLP techniques like named entity recognition, conference resolution, and question classification. Implement safeguards and guidelines to ensure responsible and ethical use of the application. Developing a mobile application version of the system.

GitHub Link

<https://github.com/priyamrabari/priyam.github.io>

REFERENCES

- 1.] <https://www.youtube.com/watch?v=mExacrTHUek>
- 2.] <https://www.kaggle.com/c/fake-news/data>
- 3.] <https://streamlit.io/components>