Home

Dhairya_Patel edited this page 2 hours ago · 1 revision

Edit   New page

Welcome to the News-Identifier-Project- wiki!

Introduction

Project Overview

This capstone project focuses on leveraging machine learning techniques to analyze the authenticity of news shared on social media platforms. We aim to develop an effective framework for distinguishing between true and false information, thereby improving the accuracy of content shared across these platforms.

Key Objectives

- Utilize machine learning models to predict the authenticity of news content.
- Train and test these models using a comprehensive dataset from Kaggle.
- Create a robust framework for identifying fake news.
- Enhance the overall accuracy of information dissemination on social media.

Significance

In the digital age, the rapid spread of fake news poses significant challenges to society, including:

Significance

In the digital age, the rapid spread of fake news poses significant challenges to society, including:

- Increased confusion among the public
- Erosion of trust in media and institutions
- Potential harm caused by the circulation of false information

This project addresses these issues by combining cutting-edge machine-learning techniques with media literacy principles. Our ultimate goal is to:

- Protect public trust in information sources
- Promote the sharing of accurate news
- Develop tools to combat the spread of misinformation We hope to contribute to a more informed and discerning digital society by focusing on this critical area.

Project Relevance

The Growing Challenge of Misinformation

In today's digital landscape, the rapid spread of misinformation through social media platforms has become a pressing global concern. This project addresses a critical need in our increasingly interconnected world:

- Information Overload: With the exponential growth of online content, users are bombarded with information, making it difficult to discern fact from fiction
- Viral Spread: Social media algorithms can amplify false information, allowing it to reach millions of users within hours
- Societal Impact: Fake news can influence public opinion, affect political processes, and even impact public health decisions.

Add a custom sidebar

Clone this wiki locally

https://github.com/hardidave/News

Technological Relevance

Our project leverages cutting-edge technologies to combat this issue:

- Machine Learning Application: By applying advanced ML techniques to news authentication, we're pushing the boundaries of AI in content verification.
- Big Data Analysis: Utilizing large datasets from Kaggle demonstrates the project's relevance in handling and analyzing big data, a crucial skill in today's tech landscape.
- Interdisciplinary Approach: Combining computer science with media studies showcases the project's relevance in bridging technical and social sciences.

Societal Importance

The implications of this project extend beyond technology:

- Promoting Digital Literacy: By developing tools to identify fake news, we contribute to enhancing overall digital literacy among social media users.
- Protecting Democratic Processes: Accurate information is crucial for informed decision-making in democratic societies.
- Public Health and Safety: In times of crisis (e.g., pandemics), distinguishing between true and false information can be a matter of public safety.

Unique Features

Our News Identifier project incorporates several innovative elements that set it apart from existing solutions:

Comprehensive Machine Learning Approach

- Multi-Model Comparison: Unlike many projects that focus on a single ML model, we implement and compare multiple models (e.g., Neural Networks, Random Forests, SVMs) to identify the most effective approach for fake news detection.

Advanced Natural Language Processing (NLP)

- Contextual Understanding: Our system goes beyond simple keyword matching, employing advanced NLP techniques to understand the context and nuances of language used in news articles.

Social Network Analysis

- Propagation Patterns: Our project uniquely considers how news spreads through social networks, analyzing sharing patterns to identify potential fake news.
- User Credibility Scoring: We develop a system to assess the credibility of users sharing news, adding another layer to our authenticity evaluation.

Explainable AI Components

- Transparency in Decision Making: our system provides clear explanations for why a particular piece of news is classified as fake or authentic.
- Educational Tool: This feature also serves as an educational tool, helping users understand the characteristics of fake news.

Cross-Platform Compatibility

- Multi-Source Analysis: Our system is designed to analyze content from various social media platforms, providing a more comprehensive news identification solution.

Customizable Thresholds

- Adjustable Sensitivity: Users can adjust the system's sensitivity based on their specific needs, balancing between positive and negative news.

Technology Stack

Our fake news detection project leverages a robust and modern technology stack to ensure efficiency, scalability, and maintainability. Here's an overview of the key components:

- Programming Language: Python
- Tools: TextBlob, Jupyter Notebook
- Machine Learning Models & Data Science: Decision Tree Classifier, XGBoost, KNN, NLTK, Scikit-learn, TensorFlow/Keras, Pandas, Numpy
- Dataset: Kaggle-Fake News Detection Dataset

About Developer:

- Avi Patel
- Dhairya Patel
- Hardi Dave

Upcoming Updates:

- Burndown Charts
- Snapshots of coding and mapping
- User manuals

Future Development

- Multi-lingual Support
- Beyond Text
- Continuous Model Update
- Feedback Loop Integration

+ Add a custom footer