

Misinformation Detector

Team Blue

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1. Introduction

The problem is that, especially in recent years and with the spread of information being increasingly feasible due to things such as the web and social media, misinformation continues to be a huge problem around the world and is noticeable in countries such as the United States. Misinformation targets a variety of topics, including but not limited to healthcare, politics, and business, and can often be done with malicious intent, which is disinformation or without it, which counts as misinformation. This can result in mass confusion, spread harmful rhetoric, and erode public trust, the latter of which can be observed today as trust in mass media has rapidly decreased.

The reduced trust in mass media can be attributed to the average reader lacking the necessary tools to help fact-check information on a variety of topics, and the significant amount of information that is currently on the Internet would make manual checks extremely difficult to do regularly. For additional context, according to the article “Americans’ Trust in Media Near Record Low”, only 34% of Americans trust mass media to report in an unbiased, factual manner. Also, according to the article “How Misinformation on Social Media Has Changed News.”, misinformation spreads up to ten times faster than credible reporting.

1.1 Proposed Solution

Our proposed solution to this issue was to create a fact-checking site that did things differently. Most fact-checking sites take the articles and show you related articles on the topic that either agree or disagree with the topic presented by the user, or the user inputs a keyword into a search and finds topics about said subject, but not many sites provide a credibility score on the

related article or topic given. The solution we present is a web server capable of using Machine learning and algorithms to analyze the content of a presented article and give it a numeric score to its credibility. In addition to the tool being able to apply a credibility score to articles, there will be a verified database. This will be a way to present a combative force against misinformation and disinformation. The product shall be called the Misinformation Detector.

2. Misinformation Detector Product Description

The solution starts with a user reading an article, the content is then questioned by the user, “Is this article truthful? Can I trust the author? Is the content based on fact or on opinion?”. The user takes the link to the article and submits it to our website. The website then uses algorithms to determine content, context, and look for other articles either related to the topic or written by the author to create a “profile” of their previous works and the legitimacy of their claims. From there, it can then compare the article to other articles that are trusted and proven factual, and give a numerical score between 1 and 100, providing links to related and trusted articles on the given topic for further information. The scoring would be listed as 1 being the lowest score, the content is not trustworthy and contains false information, or the author is an untrustworthy source. 100 would be the highest score, the content is factual, or the author is a trustworthy source. Every score in between is an indicator of varying degrees of misinformation or disinformation. The user can then form a more educated opinion on the topic given.

2.1 Key Product Features & Capabilities

The credibility analysis web application is designed to automatically evaluate the trustworthiness of online articles. Users can submit links from news sites, social media posts, or reference pages such as Wikipedia. The system scans and analyzes the content by comparing it with

verified sources, assessing factors such as author reliability, factual accuracy, and tone. Once processed, the tool generates a credibility score along with a brief explanation to show how that score was determined. The system updates regularly as new information becomes available, ensuring that results stay current and accurate.

2.2 Major Components (Hardware/Software)

The application is built around several main components that work together to evaluate content. The Content Ingestion component gathers article data from submitted URLs and prepares it for analysis. The Automated Misinformation Detection component runs the text through models and algorithms that check for inconsistencies, misleading language, and factual claims. The Source Credibility and Analysis component maintains a database of trusted and untrusted sources, assigning each one a credibility score based on its history and reputation. Finally, the User Interaction component manages user input and displays the credibility results in a clear, easy-to-understand format.

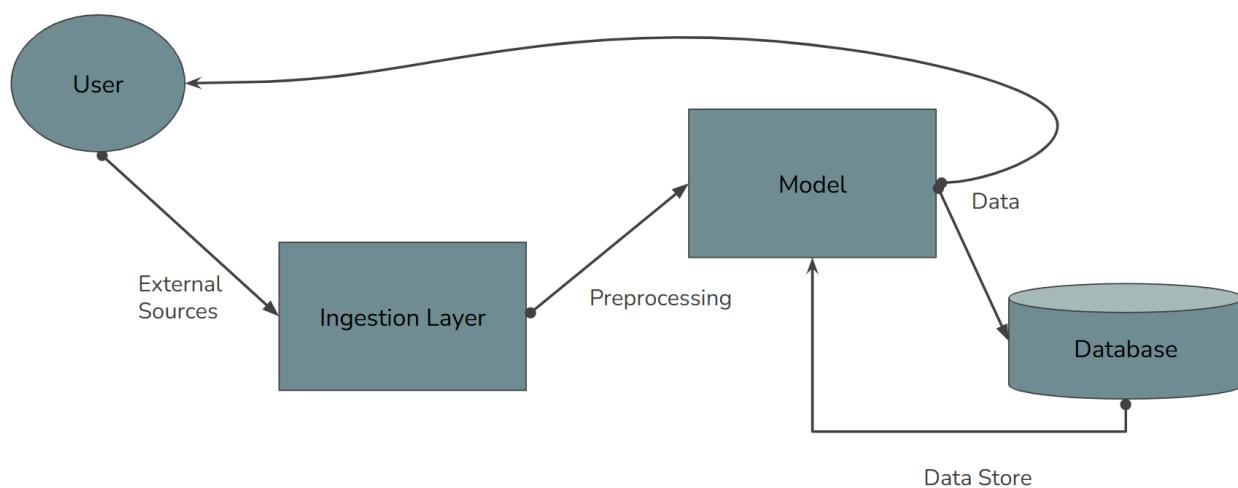


Figure 1: Major Functional Components Diagram

3. Identification of Case Study

The solution is targeted to users who wish to detect if a source has misinformation or not. Specific users could include professors, researchers, or students. However, this solution is built for everyone; anyone with a general interest in detecting potential misinformation in a source is available to use the solution. The reason this solution is being developed is so that readers can quickly determine if a source is bogus or not without having to spend their own time validating the author(s) or the content. This solution will make it easy for professors, researchers, and students alike to quickly discern a source for credibility and get back to their main work. While this solution does have users who may use this more frequently, this solution is available to the general public. For example, social media users who may want to judge an Instagram post for misinformation. In addition, this solution could be used by citizens of countries who do not have the technology to judge authors and content for misinformation. For example, maybe their location does not allow them to go to specific websites to view the credentials of a writer. This solution provides the living database needed to mitigate issues like these.

4. Glossary

Algorithm - A process or set of rules to be followed in calculations or other problem solving operations

Disinformation - false or inaccurate information, often shared with intent of causing harm

Machine Learning (ML) - A subsection of AI that is focused on specific algorithms that have the capability to learn from various types and patterns of training data in order to accurately predict regarding new data.

Misinformation - false or inaccurate information, often shared without the intent of causing harm

Natural Language Processing (NLP) - A subsection of AI that allows computers to understand and generate human language.

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