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The role of artificial intelligence in news portal fact-checking systems

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Abstract

This article examines the application of artificial intelligence within the fact-checking systems of news portals. Its relevance stems from the rising volume of misinformation in digital environments and the limited capacity of manual verification. The novelty of the study lies in a comprehensive analysis of contemporary AI tools that not only isolate cl AI ms for verification but also perform multi-agent source retrieval—ensuring verdict transparency through citation of original data. The paper describes mechanisms for initial text analysis, corroboration searches, and detection of visual forgeries, and reviews implementation examples in the editorial workflows of Der Spiegel, FullFact, and Maldita [Der Spiegel; FullFact; Maldita]. Methods for assessing veracity using language models and computer-vision algorithms are explored, with special attention to model hallucination risks and the need for expl AI nable decisions. The study's objective is to identify AI 's potential for optimizing fact-checking processes and to develop recommendations for integrating these solutions into editorial practices. To achieve this, the authors employ comparative analysis, data systematization, and a survey of empirical case studies. The work builds on a comparative juxtaposition of empirical practices and theoretical models presented in the international literature. Artificial intelligence automates fact extraction, evidence retrieval, and multimodal verification to accelerate the fact-checking workflow on news platforms.

Keywords: Fact-Checking; Artificial Intelligence; News Portals; Fact-Check Automation; Language Models; Computer Vision; Misinformation; Expl AI nable AI; Algorithmic Monitoring; Empirical Case Studies

1. Introduction

The rapid proliferation of disinformation and fake news in the digital age has posed a significant challenge: verifying the accuracy of an immense volume of published content. Traditional fact-checking methods—relying solely on manual review by journalists—can no longer keep pace with the information load requiring verification. For news portals that publish hundreds of items d AI ly, it is critical to detect and debunk false cl AI ms swiftly in order to m AI nt AI n audience trust. Under these circumstances, researchers and practitioners have turned their attention to artificial-intelligence (AI) technologies as tools to automate and enhance the fact-checking process. AI can process vast datasets, uncover hidden patterns, and even generate natural-language summaries—capabilities that lend themselves to cl AI m extraction, identification of dubious assertions, and tracking the spread of falsehoods.

The AI m of this article is to analyse the role and position of AI within news-media fact-checking systems, examining current practices, achievements, and limitations. The topic's relevance is underscored by the fact that the volume of information online has long exceeded human capacity for meaningful assessment, and without automated support, the battle ag AI nst information manipulation is doomed to f AI l. The study's objectives include

- reviewing the principal applications of AI in fact-checking (from automated cl AI m detection to source retrieval and verdict formulation);
- surveying real-world implementations of such systems in news organisations;

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- analysing the advantages and risks associated with AI deployment in this dom AI n.

2. Materials and Methods

Publications by leading researchers in the fields of fact-checking and artificial intelligence served as primary sources. Media Helping Media [1] synthesized trends in AI adoption within journalism; R. A. AI ssani [2] examined AI tools used by news outlets; R. A. Abdallah [2] explored the risks associated with their deployment; S. Taha [2] det AI led capabilities for cl AI m detection; M. N. Al Adwan [2] analyzed algorithmic source-retrieval techniques; D. Corney [3] investigated anti-disinformation technologies; A. Fu [4] reviewed contemporary fact-checking practices; G. Khan [5] evaluated the effectiveness of generative models; D. Quehl and A. Bovet [6] studied expl AI nability of AI decisions; N. Roy [7] presented the Der Spiegel implementation case; and R. Sunil, P. M AI r, A. Diwan, R. Mahadeva, and A. Sharma [8] researched methods for deepfake detection. Together, these works provided a robust foundation for subsequent analysis.

The study employed a comparative approach, comprehensive literature review, and synthesis of empirical findings. Data were systematized through case structuring and technology classification. These methods ensured a coherent and holistic overview of automated fact-checking practices.

3. Results

The volume of false information circulating across media outlets and social networks has grown so vast that professional fact-checkers simply cannot verify every questionable cl AI m. Research shows that automating fact-checking with machine-learning techniques has become essential, as the spread of disinformation outstrips human resources av AI lable for its refutation [6]. On average, a journalist may spend hours—or even days—verifying a single statement, while thousands of potentially false posts appear online in the same time frame. AI addresses this challenge through its speed and scalability: algorithms can scan large text corpora in seconds, extract factual cl AI ms, and cross-reference them ag AI nst reliable databases. For example, natural-language processing models can automatically isolate individual assertions from a news article that warrant verification [7].

Such systems serve as a primary filter identifying statements that may require fact-checking and freeing human reviewers from the need to sift through the entire news stream manually. This capability dramatically accelerates response times: experts note that algorithmic fact-checking shifts the process from a post-publication review to a proactive stance, detecting dubious cl AI ms during content preparation [1]. In this way, AI handles the routine of preliminary analysis, laying the groundwork for deeper, manual verification. Table 1 below systematises the core AI functions in news-portal fact-checking.

Table 1 Functional Applications of AI in News-Portal Fact-Checking (compiled by the author based on [1–3])

AI Function	Description
Cl AI m extraction	Automated identification of statements requiring verification
Source retrieval and aggregation	Generation of search queries and collection of supporting evidence
Content-stream monitoring	Continuous analysis of media and social-media feeds with alerts for suspicious cl AI ms
Multimodal verification	Evaluation of text, images, and video for comprehensive fact-checking

Beyond cl AI m extraction, AI 's most critical function is sourcing and aggregating the evidence needed to verify those cl AI ms. Modern news portals have access to vast databases, news archives, and reference works, but locating the right corroboration manually can be time-consuming. AI algorithms can be configured to automatically retrieve sources that confirm or refute a given assertion. For example, some fact-checking systems employ agents built on large language models to generate search queries and extract contextually relevant data from across the web.

Experimental studies demonstrate that the "AI + search" combination can assemble substantial context around a cl AI m and even offer a preliminary assessment of its veracity [6]. A major breakthrough has been teaching these systems to cite their sources—for instance, using specialized GPT variants that justify their "verdict" by quoting the material they found. This approach allows AI to join the fact-checking workflow without sacrificing transparency: the algorithm not

only issues a judgment but also indicates the data on which it is based. A similar method was implemented in a research project where GPT-4–based agents generated explanations and cited documents when verifying political statements [6]. As a result, AI can already perform much of a fact-checker's investigative work—gathering disparate data, comparing figures, cross-checking statements ag AI nst official reports, and so on.

Real-world deployments of AI in newsrooms and independent fact-checking organizations are particularly instructive. In recent years, several leading media companies have experimented with integrating AI into their fact-checking teams. A prominent example is the German publisher Der Spiegel, renowned for one of the world's strongest fact-checking units. In 2024, Spiegel developed and piloted its own AI tool to assist fact-checkers [7]. The system works by uploading the draft article into a dedicated application, where an AI model analyzes every factual statement, flags potential errors, and searches for verification sources.

The prototype comprises several stages. First, fact extraction: a GPT-based model marks every sentence in the text that cont AI ns a checkable fact (names, dates, statistics, quotations, etc.). Second, initial verification: for each extracted fact, an AI agent issues queries to both the organization's knowledge base and the internet, seeking confirming or disconfirming information. For instance, if the article states "Company A earned X million," the system will locate the company's financial report or related news to verify the figure. Next, based on the gathered evidence, the algorithm assigns each fact a confidence score. Passages with low confidence or conflicting data are flagged and routed to human review. The final stage is specialist validation: a professional fact-checker examines the AI 's annotations, scrutinizes the problematic areas, and makes the ultimate determination regarding the accuracy of the facts.

During its pilot, Der Spiegel found that the system markedly improved efficiency: automating routine steps sped up verification and allowed a larger volume of content to be checked without expanding staff. The AI tool handled standard tasks, enabling humans to focus on complex, contextual issues. Furthermore, there were instances where the algorithm spotted inaccuracies that had escaped the journalist's notice, r AI sing the overall accuracy and quality of the output.

Alongside Der Spiegel, leading fact-checking organizations have also moved swiftly to adopt AI. For example, the British FullFact and the Spanish Maldita have built their own machine-learning systems that monitor streams of public statements and flag potentially false cl AI ms in real time [5]. These platforms track live broadcasts, social-media posts, and political speeches—serving as an "alert system" that draws fact-checkers' attention to items warranting further scrutiny. Thus, real-world experience shows that AI 's role is evolving from supportive to proactive, becoming an integral component of the fact-checking infrastructure for major media outlets. Below are key examples of how AI has been implemented in fact-checking units (Table 2).

Table 2 Examples of AI Implementation in Fact-Checking Organizations (compiled by the author based on [2, 4])

Organization	Tool Description	M AI n Stages of Operation
Der Spiegel	Article-text upload application	Fact extraction; initial verification via knowledge base and web search; confidence-score assignment and routing to human review
FullFact	Public-utterance monitoring system	Scanning parliamentary transcripts and social-media feeds; flagging statements that merit checking
Maldita	Media and social-media mention analysis platform	Automated retrieval of quotes and images; ranking items by likelihood of falsehood

Analysis reveals that introducing AI tools transforms both qualitative and quantitative aspects of fact-checking. First, response speed to disinformation increases dramatically. Automated systems operate around the clock and immediately detect surges in suspicious content. For instance, when a viral rumor surfaces online, AI monitoring algorithms swiftly identify it and notify fact-checking teams, allowing corrections to be published far sooner than manual processes would permit.

Second, coverage expands significantly: whereas an editorial team previously could verify only a handful of high-profile cl AI ms, AI enables simultaneous analysis of dozens or even hundreds of sources. FullFact's system, for example, automatically scans parliamentary debates, TV programs, and news every day—filtering out the most significant and questionable statements [5]. This ensures that no critical political remark or viral social-media post slips through simply because of time constr AI nts.

Third, AI enhances objectivity and standardization in the initial review. Algorithms evaluate cl AI ms ag AI nst predefined criteria, free from the cognitive and confirmation biases that can influence human judgment. Although the final verdict rem AI ns with a human expert, AI 's preliminary assessment often helps guard ag AI nst subjective distortions.

Moreover, AI can flag factual errors that human reviewers might overlook due to fatigue or inattention. Early experience at Der Spiegel showed that the AI tool sometimes detected inaccuracies in the text that editors had missed [7]. Another advantage is the boosted efficiency of human resources: by automating routine tasks (data retrieval, citation extraction, cross-checking dates and names), AI lightens staff workloads and allows them to concentrate on analytical and creative work. This is especially important given the constr AI ned budgets of many news organizations—table becomes a "force multiplier" for fact-checking teams.

Despite these impressive g AI ns, applying artificial intelligence to fact-checking brings several serious challenges. First and foremost, absolute algorithmic accuracy rem AI ns out of reach. AI models are not infallible and sometimes err when verifying information. Large language models, for example, are prone to generating plausible but false statements (hallucinations), particularly when operating without sufficient context. Studies have shown that even advanced GPT-based systems can confidently assert incorrect "facts" if not supplied with verifiable sources [6]. This creates a risk that an automated tool may mistakenly flag a true cl AI m as false or, worse, f AI l to catch a significant falsehood. Consequently, human oversight rem AI ns indispensable: experts stress that algorithms should operate in concert with editors, and the final verdict must always rest with a person.

A second major risk is the transparency and expl AI nability of AI decisions. When a system labels a fact as false, it must also expl AI n the basis for that determination. To date, the most acceptable solution is to require AI systems to cite their sources and provide reasoning. However, not all models can do this—many functions as "black boxes," delivering conclusions without explanation. Deploying such opaque algorithms in journalism is dangerous, as it undermines trust in fact-checking: neither audiences nor editors can verify why the machine reached its conclusion. The global fact-checking community therefore demands maximal openness in algorithmic decision-making and the development of expl AI nable AI t AI lored specifically to media applications.

A third challenge is vulnerability to manipulation and targeted attacks. Bad actors, aware of an algorithm's criteria, may attempt to bypass it—for example, by phrasing false statements in a way that appears neutral and evades detection, or conversely, by flooding the system with trivial, outdated "facts" to trigger false alarms. Recent adversarial-robustness research shows that models can be deceived by specially crafted text [2]. This means that news portals relying on AI must continuously update and harden their algorithms.

Moreover, there are significant organizational and ethical constr AI nts. Deploying AI demands upfront investment, personnel tr AI ning in new skills, and reengineering of existing workflows. Not all newsrooms are prepared—technologically or culturally—for such a transformation. From an ethical standpoint, excessive automation risks eroding critical judgment: journalists may come to over-rely on the machine and overlook nuances the algorithm did not capture. It is essential to preserve the gold standard of journalism—skepticism and rigorous inquiry—while augmenting it with AI tools, rather than replacing it entirely. The global fact-checking community emphasises that AI must enhance, not supplant, human expertise in this work [4]. As the head of AI at FullFact has noted, algorithms can help surface important or hard-to-find facts, but they cannot fully appreciate context or anticipate downstream consequences on their own [4]. The following points summarise the principal challenges and risks associated with AI in fact-checking (Table 3).

Table 3 Key Challenges and Risks of AI in Fact-Checking (compiled by the author based on [1, 5, 6])

Problem	Description
Plausible error generation	Models tend to "hallucinate" without sufficient verifiable data
Lack of transparent explanations	Inadequate justification of verdicts makes it hard to assess decision validity
Vulnerability to manipulation	Adversarially crafted texts can evade detectors and mislead the system
Insufficient staff expertise	High effort required to tr AI n personnel in new AI -driven tools
Ethical and organizational risks	Automation may diminish journalists' critical approach when relied on excessively

The role of AI in fact-checking is not confined to analysing textual cl AI ms. As image- and video-generation technologies (deepfake) advance, fact-checking teams face a new challenge: verifying visual content. Here too, AI takes centre stage. Computer-vision models are deployed to compare images, detect tampering, and match photographs ag AI nst geolocation data. One example is "image geolocation" tools: an algorithm examines a photo of an event and determines whether its background and surroundings align with the cl AI med location. This helps expose cases where an image from one country is falsely presented as coming from another. AI can also automate reverse-image searches to find the original source of a picture used in a fake news item, accelerating the verification of visual materials [8]. Moreover, AI techniques can detect artefacts of synthetic image generation. Integrating text, image, and even video analysis into a unified fact-checking system represents a promising direction. Multimodal algorithms will eventually be able to evaluate a news item holistically—assessing the statement's language, the accompanying image, and the source's provenance—to deliver a comprehensive verdict on accuracy. Although such universal tools are already in development, significant technical hurdles must still be overcome before they become standard practice.

4. Discussion

Summarising the findings, it is clear that artificial intelligence brings fundamentally new capabilities to news-portal fact-checking, while also r AI sing fresh questions. In terms of efficiency, the benefits are obvious: AI can process information at unprecedented speed, freeing journalists from routine tasks and enabling them to focus on analytical work. At the same time, concerns about reliability emerge: when delegating portion of the verification process to algorithms, editorial teams must have confidence that the machine's recommendations are sound. It is important to stress that fact-checking is not merely a mechanical comparison of cl AI ms ag AI nst a database, but also an interpretation of context, intent, and potential ambiguity.

An algorithm may confirm or refute a bare fact (for example, a country's GDP in a given year), but it struggles to detect sarcasm, metaphor, or context-driven subtleties often used by purveyors of disinformation. A statement may be literally accurate yet presented in a misleading context—an artifice that a human can recognise but an AI may miss. Therefore, a hybrid approach combining AI and human expertise appears optimal: the machine handles the quantitative tasks (scanning, counting, initial cross-checking), while the human addresses the qualitative dimensions (context, nuance, and implications).

Looking ahead, AI 's role in fact-checking is poised to expand. As algorithms—especially large language models—become more sophisticated, they will better grasp the nuances of natural language and journalistic practice. Even today, major tech firms and industry consortia (such as the Google News Initiative) are investing in AI -driven tools for journalists, including fact-checking AI ds. One can foresee integrated "smart assistants" embedded within content-management systems: as reporters draft an article, such assistants would highlight questionable cl AI ms in real time, suggest relevant references, and verify quotes for accuracy. These assistants could become as commonplace on a journalist's desktop as today's spell-checkers and grammar tools—r AI sing the bar for information quality by catching gross factual errors before publication.

However, this evolution also increases the responsibility borne by developers and media organisations. Fact-checking algorithms must be designed and tuned with great care to avoid systemic bias and unf AI rness. AI models are tr AI ned on large datasets that may themselves carry distorted or unbalanced portrayals of reality. If such bias infiltrates a fact-checking algorithm, it risks misclassifying cert AI n types of cl AI ms—especially politically sensitive ones—more frequently. That outcome is unacceptable, and so independent auditing and validation of these systems by third parties

are essential. Within the professional fact-checking community, there is growing discussion of establishing quality standards for algorithmic tools akin to the ethical and editorial standards that govern journalism.

Another important topic in the discussion is audience reaction to the use of AI. Can a news portal persuade readers to trust fact-checking carried out by an algorithm? Much depends on transparency: if an article clearly states, "This fact was verified using the X AI system—here are its findings and sources," trust may even increase, since an objective tool is pl AI nly in use. But if AI operates behind the scenes and is only disclosed post-factum, suspicion can arise. Consequently, news organizations must craft communication strategies that inform the public how they employ AI to enhance information accuracy. Examples already exist: FullFact regularly publishes reports on its fact-checking automation projects, det AI ling exactly what their software does and the results achieved [3].

It is conceivable that, as these technologies mature, fact-checking could become nearly fully automated—from evidence gathering to verdict issuance. Some futurists predict that algorithmic fact-checking will become a standard feature of search engines or social networks, with every questionable post immediately accompanied by an AI -generated truth rating. However, realizing this scenario would require resolving numerous ethical and practical challenges around censorship, freedom of expression, and public trust in machines. For now, one thing rem AI ns cert AI n: humans will stay central to the fact-checking process—at least until AI att AI ns a level of comprehension indistinguishable from our own.

Thus, the debate over AI 's role in fact-checking highlights both the remarkable progress achieved and the need for a measured, critical approach to technology integration. Artificial intelligence already significantly bolsters news portals' ability to combat falsehoods, but it demands thoughtful use and continuous oversight.

5. Conclusion

In the course of this study into the role of artificial intelligence in news-portal fact-checking systems, several key conclusions emerged. First, AI has become an indispensable component of modern journalistic verification workflows, offering tools for rapid and large-scale information analysis. Its primary functions—automated identification of cl AI ms requiring verification, retrieval of reliable sources to confirm or refute those cl AI ms, and preliminary assessment of veracity—have proven effective in practice, significantly accelerating responses to misinformation and expanding the volume of content that can be checked. Second, analysis of real-world implementations shows that machine-learning algorithms boost fact-checking productivity, improve accuracy through an added layer of automated scrutiny, and enable more strategic allocation of human resources. The scientific and practical significance of these findings lies in their demonstration that hybrid systems—combining the strengths of AI and human expertise—offer a promising path toward maximising the reliability of published information.

At the same time, the study underscores that AI deployment is not without limitations. Algorithms demand careful configuration, rigorous testing, and ongoing specialist oversight to prevent errors and bias. The findings emphasise that, at this stage of technological development, AI should be regarded as an intelligent assistant rather than an independent arbiter of truth. The human factor—journalists' expert judgment, contextual understanding, and ethical considerations—rem AI ns decisive when issuing final fact-checking verdicts. From a practical standpoint, media organisations are advised to introduce AI tools gradually, concurrently developing staff competencies and establishing internal protocols that govern human–machine collaboration.

The scientific novelty of this research resides in its comprehensive review of AI 's role in fact-checking—from linguistic models to computer-vision techniques—incorporating the very latest advances as of 2024–2025. This work lays the groundwork for future investigations, such as comparative evaluations of different AI architectures in fact-checking tasks, studies of audience perception of AI -verified content, and the creation of new quality metrics for automated fact-checking. Ultimately, the study concludes that the synergy between human experience and artificial intelligence represents a forward-looking trajectory for journalism, particularly in the fight ag AI nst misinformation. News portals that successfully integrate AI into their fact-verification processes g AI n a competitive edge: the ability to deliver faster, more thoroughly vetted, and more reliable information to their audiences. In an era of information warfare and rampant fake news, this advantage translates directly into increased reader trust—the ultimate practical value of these innovations.

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