Vol. 1 No. 1, Juni 2024

Peace and Humanity Outlook
https://pho.ibnusantara.com/

E-ISSN: | DOI:

Intersection Of Artificial Intelligence and Islamic Studies: Challenges and Opportunities in The Digital Era

Khairul Umam[a1] Nur Jannah[b]

[a] Universitas Islam Negeri Kiai Haji Achmad Siddiq Jember, Indonesia
[b] Universitas Al-Falah As-Sunniyah Kencong Jember, Indonesia

Article Information:
Received 2024-05-12
Revised 2024-06-07
Published 2024-06-30

Keywords: artificial intelligence, islamic studies, ethics, algorithmic, data privacy

Abstract

This article explores the intersection of artificial intelligence (AI) and Islamic studies, focusing on the challenges and opportunities that arise in the digital era. The use of AI in various aspects of life, including Islamic studies, raises several issues, such as the reliability of AI in translating and interpreting sacred texts and the application of Islamic teachings in a modern context. The fundamental challenges lie in ethical and theological values, including the potential for bias in AI algorithms that can affect the interpretation and understanding of religious texts. The article also highlights the importance of collaboration between computer scientists and Islamic theologians to ensure that AI technologies are developed with Islamic ethical values. In addition, the social and cultural impacts of the adoption of AI in Islamic studies are explored, including the risks to the privacy and security of Muslim data. This article seeks to contribute to creating an ethical framework that can guide the use of AI in religious contexts and increase accessibility and efficiency in Islamic studies without compromising ethical values and the integrity of spiritual teachings.

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INTRODUCTION

Artificial intelligence (AI) in various aspects of life, including Islamic studies, raises significant problems. One major issue is the reliability of AI in accurately translating and interpreting Islamic texts. AI algorithms are often biased or inaccurate due to the complexity of classical Arabic and theological nuances that are difficult to simplify with machine language (Smith, 2020). The use of AI in religious applications, such as prayer time reminders or chatbots, also raises concerns about the reliability of the information (Al-Razgan et al., 2021; Alpaydin, 2020). Ethically, AI often operates without clear moral guidance, risking producing interpretations that deviate from Islamic teachings (Alkhouri, 2024). This has sparked debate over whether non-Islamic technology can be trusted to interpret and disseminate religious teachings (Johnson, 2021; Saleh et al., 2019; Dorobantu, 2022; Malik, 2023). Theologically, AI's limitations can change how Muslims understand their religious teachings. At the same time, sociologists view AI as a tool that can strengthen or weaken social structures within Muslim communities. On the other hand, from a technological perspective, AI is considered an innovation that can increase efficiency and accuracy in studying and practicing Islamic teachings. Still, it also risks creating excessive dependence on technology.

Recent research has revealed three main trends in the use of AI in Islamic studies. First, the development of AI-based translation tools for classical Islamic texts aims to improve the accessibility

[1]khairulumam@uinkhas.ac.id

How to cite: Umam, K., & Jannah, N. (2024). Intersection Of Artificial Intelligence and Islamic Studies: Challenges and Opportunities in The Digital Era. *Peace and Humanity Outlook,* 1(1), 39–48. Retrieved from https://pho.ibnusantara.com/index.php/phoutlook/article/view/27

and understanding of classical Arabic literature by non-Arab Muslims (Ali, 2023). Second, AI algorithms support digital fatwas, where AI systems answer religious questions based on an extensive database of Islamic law (Ningsih, 2023). Third is AI's ethical and social impact in the Islamic context, which explores its influence on religious authority, practices, and social dynamics in Muslim communities (Hakim, 2024). One aspect that has not been widely discussed is the impact of AI use on the privacy and data security of Muslims. When AI analyzes individuals' religious behavior, preferences, and interactions with Islamic texts through digital applications, there are significant risks associated with collecting and storing sensitive data. This data could be misused by irresponsible parties or governments with specific agendas. More discussion is needed regarding protecting user privacy, and the ethical use of data by Sharia principles is a critical issue. Further research is required to develop a robust framework to secure user data and privacy in the use of AI for religious purposes, thereby maintaining the integrity and trust of the Muslim community in this technology (Dilmaghani, 2019; Hassan, 2024).

This article aims to identify and analyze the challenges and opportunities arising from the intersection of AI and Islamic studies. By reviewing various perspectives and previous research trends, this article is expected to enrich the academic discussion on AI's ethical and beneficial use in religious contexts. This research provides in-depth insights into how AI can be applied to support Islamic studies while considering ethical aspects, privacy, and data security, thereby assisting policymakers, researchers, and practitioners in developing AI applications that follow Islamic principles. This is important because AI has become an integral part of modern life and cannot be avoided. Therefore, understanding the implications of AI in Islamic studies is essential to ensure that this technology is used wisely and by religious values. Thus, this article contributes significantly to creating an ethical framework that can guide the use of AI in religious contexts.

This study hypothesizes that AI algorithms that must consider the complexity of classical Arabic and theological nuances will likely produce biased or inaccurate translations and interpretations of Islamic texts. The use of AI in religious applications such as prayer reminders and chatbots may raise concerns about the reliability of the information. AI operating without clear moral guidelines risks producing deviant interpretations of Islamic teachings and fueling debates about the trustworthiness of non-Islamic technologies in spreading religious teachings. Three key trends in the use of AI in Islamic studies are increasing accessibility of classical literature, supporting digital fatwas, and exploring the ethical and social impacts of these technologies on Muslim communities. AI also raises the risk of privacy and security breaches of religious data, requiring a robust framework to protect data by Sharia principles. Finally, ethical and beneficial applications of AI in religious contexts can be achieved through an in-depth study of the challenges and opportunities that arise from the intersection of AI and Islamic studies, considering ethical, privacy, and data security aspects..

METHOD

This study uses a qualitative approach with literature review and content analysis methods to identify and analyze the challenges and opportunities that arise from the intersection of AI and Islamic studies. This method was chosen because it allows in-depth exploration of relevant theological, ethical, sociological, and technological perspectives. This study was designed as an exploratory study focusing on content analysis of the existing literature. The aim was to collect and analyze secondary data on using AI in the Islamic religious context and to evaluate key trends and issues identified in the literature. The data used in this study came from a variety of secondary sources, including academic journal articles relevant to the topic of AI and Islamic studies, books and publications discussing AI, ethics, and data privacy in religious contexts, research and conference reports concerning the application of AI in religious contexts, and documents and articles published by religious organizations and research institutions focused on AI and Islam. Data sources were identified through searches in academic databases such as Google Scholar, JSTOR, IEEE Xplore, and university libraries (Creswell, 2014; Merriam, 2009).

Data analysis was conducted through the following steps: first, coding of the collected data based on the main themes identified in the introduction, namely the reliability of AI in translating

Islamic texts, the use of AI in religious applications, moral guidance in AI operations, and data privacy and security. Second, the coded data were grouped into relevant categories: algorithmic bias, AI ethics, social impacts, and privacy frameworks. Third, the categorized data were analyzed to identify patterns and relationships between the various issues raised and to evaluate key trends and emerging challenges (Bazeley, 2013; Strauss & Corbin, 1998). To ensure the validity and reliability of the study, the following steps were taken: source triangulation by using multiple data sources to cross-check and ensure consistency of findings, peer review by involving other researchers or experts in the field of Islamic studies and AI to review and provide input on the research findings, and audit trail by keeping clear and detailed records of the research process, including the steps of data collection and analysis (Lincoln & Guba, 1985; Yin, 2018). The results of the data analysis will be used to answer the research questions and test the hypotheses that have been formulated. This study is expected to significantly contribute to understanding the challenges and opportunities of using AI in Islamic studies and developing an ethical framework that can guide the use of AI in a religious context. With this methodology, the study aims to produce comprehensive and reliable insights into how AI can be used ethically and effectively in supporting Islamic religious studies and practices (Creswell, 2014; Merriam, 2009).

RESULTS AND DISCUSSION

Results

Based on the results of researchers' searches in the digital world, various problematic cases have been found that arise from the interaction between AI and Islamic studies. Here are some reviews of these problems:

Prayer Time Reminder Application

Prayer time reminder applications are one example of how AI can be used in Muslims' daily lives. Some applications that can be used are as follows:

NO	Picture	Description
1		This app offers accurate prayer times, an adhan reminder, a translated Quran, and a community feature that allows users to connect with fellow Muslims.
2		This app provides accurate prayer times, the Quran with translation and audio, and a collection of Islamic prayers.
3		This app provides accurate prayer times, Qibla direction, a translation of the Quran, and an Islamic calendar.
4		This app is popular for its simplicity and unwavering reliability in providing prayer time reminders, instilling a sense of security and confidence in its users.

Source: data processed by researchers from various sources

Apps like Muslim Pro, Athan Pro, and Deeniapp are becoming essential tools for Muslims to maintain prayer times using location-based AI algorithms. However, two significant issues must be addressed: the algorithm'salgorithm's reliability and accuracy and user data privacy. First, the AI algorithm must be highly accurate in determining prayer times based on the position of the sun, which varies with the latitude and longitude of the location. Inaccuracies can disrupt users' prayers, so the algorithm needs to process spatial data accurately and in real-time (Goodchild, 1992; Longley et al., 2005). Second, data privacy is a serious concern. Collecting location data to determine prayer times raises concerns about the storage and use of such data. The Muslim Pro controversy over allegations of selling user location data to the US military highlights the significant risks associated with collecting sensitive data without transparency (BBC News, 2020). Data collection without user control can violate privacy (Solove, 2006). Developers of these apps need to ensure the algorithm's

reliability and take privacy issues seriously. With good transparency and data protection, prayer time reminder apps can continue to be a valuable and safe tool for their users.

Religious Chatbot

Chatbots designed to provide religious advice and answer questions about Islam are also significant uses of AI. For example, apps like "Ask the Sheikh" use AI to provide answers based on a database of fatwas and Islamic teachings.



Figure 1. Chatbot

Religious chatbots are AI-based digital tools that help individuals practice their religion. Their main features include prayer time reminders, prayer guides, spiritual consultations, educational content, and holy book readers. Their benefits include accessibility of information, continuous learning, personalized support, automated reminders, and user privacy and anonymity. It is essential to ensure the reliability of the information, protect data privacy, and make the chatbot responsive. In some cases, users may need to be directed to consult a religious expert. With advanced technology, religious chatbots can help communities practice and understand religious teachings (Goodchild, 1992; Longley et al., 2005).

While there are challenges, it's important to also consider the potential benefits of religious chatbots. These digital tools can provide reliable answers, prayer time reminders, and educational content, all in accordance with authentic Islamic teachings. They can also offer personalized support and automated reminders, enhancing the practice of religion. However, the use of AI in religious advice does raise questions about authority. Traditionally, religious advice is given by scholars who have authority and a deep understanding of Islamic teachings. With the advent of chatbots, there's a risk that Muslims may become more dependent on technology than on religious scholars, potentially diminishing the role of traditional authorities in the Muslim community. The incident involving Muslim Pro, which was accused of selling user location data to the US military, highlights the significant risks associated with collecting sensitive data without transparency (BBC News, 2020). Data collection without user control can lead to significant privacy violations (Solove, 2006). By combining advanced technology and religious principles, religious chatbots can be a very useful tool for communities in practicing and deepening their understanding of religious teachings.

Digitization of Islamic Sacred Texts

To digitize the Quran and classical Islamic texts, projects use AI to facilitate access and search. Such projects involve scanning and OCR (Optical Character Recognition) to convert printed texts into searchable digital texts. AI is increasingly being used to digitize Islamic sacred texts, increasing accessibility and accuracy in the practice and study of the religion. Projects such as the Oman Digital Mushaf demonstrate how AI and digital tools can facilitate studying and reading the Quran by ensuring accurate and accessible digital representations. These efforts address issues of font layout and authenticity of digital copies, which are critical to maintaining the integrity of the text over time (Digital Quran, Wikipedia).



Figure 2. Omani digital Muṣḥaf

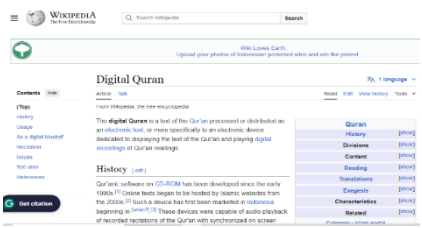


Figure 3. Al Balagh Academy

Digitization of sacred texts, such as that carried out in the "Al-Qur'an Kemenag" project by the Indonesian Ministry of Religious Affairs, plays a vital role in the preservation and accessibility of the Quran. This project allows Muslims worldwide to access digital Qurans in various translations and interpretations, helping to keep the sacred texts intact and accessible. However, this digitization also has risks, especially related to errors and bias. OCR (Optical Character Recognition) algorithms must be accurate to ensure no errors in the digitized texts, as mistakes can lead to misinterpretations. In addition, bias in the selection of digitized texts, such as only selecting specific texts that support a particular view, can affect Muslims' understanding and interpretation. Therefore, it is crucial to develop accurate and inclusive algorithms in digitizing sacred texts to ensure the reliability and diversity of the information provided.

Social Media and Digital Preaching

Social media platforms such as YouTube, Facebook, and Instagram have become the primary means for preachers and clerics to spread Islamic teachings. The AI algorithms used by these platforms to recommend content have impacted how religious messages are disseminated. The following researchers present several articles that discuss AI for social media and preaching as follows:

Table 1. Use of AI for Social Media

No	Research Results	Source
1	the use of ai for da'wah	(Hafil, 2021; Akbar, 2022; Iqbal, 2023;)
2	facebook and instagram will mark ai-generated content	(Yudha, 2024).
3	implementation of artificial intelligence in digital marketing development: a thematic review and practical exploration	(Nirwana et al., 2023) Journal of Business Management, Accounting and Finance
4	optical computing: artificial intelligence in social media	(Matthew et al., 2021) International Journal of Scientific Advances (IJSCIA)
5	the effect of artificial intelligence utilizing in social media marketing	(Pratika, 2023), Journal of Management, Bung Hatta University

Source: processed by the author by researchers from various sources

AI offers an excellent opportunity to expand the reach of da'wah through social media by analyzing user data and recommending religious content to a broader audience, as has been done by renowned da'wah such as Nouman Ali Khan and Mufti Menk, who have used platforms such as YouTube and Instagram to spread Islamic teachings globally. In addition, AI can create personalized content, tailoring da'wah messages to be more relevant and interesting to each user, thereby increasing engagement and effectiveness of message delivery (Vista, 2023). However, the same algorithms also have the potential to spread extremist content or misinformation if such content attracts a lot of interaction, posing a significant challenge for the Muslim community in combating extremism and ensuring the spread of actual and moderate Islamic teachings (RAND Corporation, 2023). To address this, social media platforms must have effective monitoring and moderation mechanisms, including using AI to detect and remove extremist or misinformation content quickly, but still require human oversight to ensure legitimate content is not accidentally removed (Macready, H., & Nick Martin, 2023). In addition, it is essential to consider ethics and privacy when using AI, ensuring that user data is adequately protected and that da'wah organizations comply with data privacy regulations. With proper oversight, AI can be a very effective tool in spreading moderate and actual Islamic teachings, maximizing its benefits while minimizing its associated risks.

The above cases illustrate the challenges and opportunities arising from using AI in Islamic studies and practice. While AI offers many potential benefits, it is essential to address the ethical, reliability, and authority issues that arise. A collaborative approach involving technology experts,

scholars, and the Muslim community is needed to ensure that this technology is used responsibly and by Islamic values.

Discussion

Artificial Intelligence (AI) is a field of technology that aims to create machines capable of performing tasks that usually require human intelligence. This technology includes various capabilities such as machine learning, natural language processing, and pattern recognition. On the other hand, Islamic studies is a discipline that studies the Islamic religion from various aspects, including theology, law, history, and culture. The relationship between AI and Islamic studies arises when this technology is used to automate and improve Islamic studies' research and education process. The use of AI in Islamic studies offers many potentials. This technology can speed up and facilitate access to classical and contemporary Islamic sources and provide a more in-depth and accurate analysis of religious texts. First, the Accuracy and Integrity of Islamic Texts. However, this progress also raises various problems that need to be considered. One of the main issues is the accuracy and integrity of Islamic texts translated and analyzed by machines. Smith (2020) highlights that the complexity of classical Arabic and the theological nuances of Islamic texts are often tricky for AI algorithms to capture. Inaccurate translations can result in significant distortions in meaning, ultimately affecting the understanding of sacred texts.

Second, Ethical and Theological Issues. Ethical and theological issues in using AI in Islamic studies are also hotly debated. Johnson (2021), Hamsin (2023), and Salsabila (2024) remind us that AI that does not have clear moral guidance can produce deviant or manipulative interpretations of religious concepts, especially sacred texts. This discrepancy can occur because AI is often developed without considering Islamic ethical values and principles, raising concerns about the validity of the interpretations produced by this technology. With its ability to learn and adapt, AI often operates without clear moral guidance, leading to deviant or manipulative interpretations of sacred texts. Therefore, Hussain and Aziz (2020) and Abid et al., (2014) emphasize in their research the importance of collaboration between computer scientists and Islamic theologians to bridge this gap and ensure that AI technology is developed with attention to Islamic ethical values.

Third, Islamic Ethics in the Use of AI. Previously, Elmahjub (2023) and Sardar (2015) highlighted the importance of Islamic ethical values in using AI. Elmahjub proposed applying the principle of al-Falah in the development of AI, which leads to well-being and success in the Islamic view. This is important because technology, if not properly directed, can have negative impacts contrary to Islamic values. However, translating these abstract theological concepts into practical and implementable AI algorithms is challenging.

Fourth, Algorithmic Bias. Bias in the development of AI algorithms is also a significant problem. Ahmed (2019) explains how the data used to train AI models can reflect certain biases, depending on the source. Suppose an AI model is only trained using literature from one particular school of thought or group. In that case, the results of its analysis and interpretation will tend to ignore the views of other schools of thought or groups. This can result in a narrowing of insight and injustice in presenting Islamic information and reinforcing certain stereotypes. This bias not only affects research results but can also reinforce injustice and misunderstanding within the Muslim community. Furthermore, Noble (2018) and O'Neil (2016) stated that AI can influence the interpretation of sacred texts and religious practices. Therefore, AI algorithms must be designed and tested to reduce bias by involving diverse perspectives and backgrounds in development. This challenge requires a multidisciplinary approach to create fair and inclusive AI technology..

Fifth, Social and Cultural Impacts. The social and cultural impacts of AI adoption in Islamic studies also need serious attention. Khan (2022) outlines how AI can change how Muslims interact with their religious knowledge. The presence of AI applications that can answer religious questions has the potential to make people rely more on technology than on traditional religious scholars or teachers. This can reduce the critical role of human interaction in religious education and damage social relationships and the transmission of knowledge that has been passed down from generation to generation in the Muslim community. Fifth, Analysis of the Development of Islamic Thought. In addition, there is also a need for more literature regarding the potential of AI to track and analyze the

development of Islamic thought over time. Siddiqui (2023) argues that AI algorithms can identify patterns of change in interpreting religious texts or religious practices reflected in literature and digital media. The use of AI in identifying, categorizing, and restoring ancient Islamic manuscripts that have not been digitized is also an area that has yet to be widely explored, even though this could significantly contribute to preserving Islamic cultural and intellectual heritage.

CONCLUSION

The intersection of artificial intelligence (AI) and Islamic studies presents significant challenges and opportunities. Literature analysis suggests that AI has the potential to increase accessibility and efficiency in Islamic studies, such as through the digitization of sacred texts and prayer reminder apps. However, challenges include ethical issues, reliability, algorithmic bias, and the social impact of using AI technology. AI in the Islamic context requires the application of moral values based on Islamic principles to ensure that this technology is used wisely and fairly. The reliability of information provided by AI-based applications and the authority and validity of religious advice provided by chatbots require special attention. In addition, social media as a digital da'wah platform must be managed carefully to prevent the spread of extremism and misinformation.

Integrating AI in Islamic studies and preaching offers excellent opportunities, such as increasing the accessibility of sacred texts and efficiency through digitization and prayer time reminder applications. However, significant challenges arise from ethical issues, reliability, algorithmic bias, and social impact. The ethics of using AI must be based on Islamic principles to ensure that the technology is used wisely and fairly. The reliability of information from AI applications and the validity of religious advice provided by chatbots require strict supervision. In addition, social media as a digital preaching platform must be carefully managed to prevent the spread of extremism and misinformation. Therefore, human oversight, strict regulation, and transparency in the use of data are needed to maximize the benefits of AI and minimize its risks.

Further research is needed to develop an AI ethics framework consistent with Islamic principles, including transparency, fairness, and accountability. The focus should also be on information validation and algorithmic oversight to improve the reliability and validity of religious AI applications with the development of sophisticated algorithms and human oversight systems. In addition, research should identify and mitigate algorithmic bias in AI applications and develop content management strategies on social media to detect and moderate extremist content and misinformation, supporting safe and ethical use.

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