

A REVIEW OF MACHINE LEARNING APPLICATIONS IN EVERYDAY LIFE AND THEIR IMPACT ON USERS

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Abstract

Machine learning (ML), a branch of artificial intelligence, is used in many digital services that people encounter every day. Examples include search engines, navigation applications, social-media feeds, online shopping, streaming platforms, spam filters and voice-enabled tools. This paper reviews common everyday applications of ML and discusses their possible benefits and risks for users. It uses a descriptive, literature-based approach, drawing on published work about recommendation systems and algorithmic ethics. Rather than presenting uncollected survey figures as findings, the paper identifies themes that can guide a future user survey: awareness, convenience, personalisation, privacy, transparency and dependence on automated recommendations. The review suggests that ML can make services more useful and efficient, while responsible data practices, understandable explanations and meaningful user controls remain important. A limitation is that this paper does not report original survey data; its discussion should therefore be read as a review, not as a measurement of users' opinions.

Keywords: Machine Learning, Artificial Intelligence, Everyday Applications, Recommendation Systems, User Experience, Privacy, Algorithmic Ethics

1. Introduction

Machine learning is a branch of artificial intelligence that allows computer systems to identify patterns in data and use them to make predictions, classifications or recommendations. Instead of requiring every rule to be written by a programmer, an ML system learns patterns from examples for a particular task.

People may use ML-enabled services without noticing the technology behind them. Examples include recommended videos and posts, suggested products in online shops, route and traffic estimates in navigation apps, spam filtering, speech recognition and some forms of fraud detection. These tools can save time and personalise services.

However, ML can also raise questions. Users may not know what information is collected, how recommendations are generated, or why an automated system has produced a particular result. Poorly designed systems can also repeat bias or encourage excessive dependence on technology. This paper reviews everyday ML applications and discusses their potential impact on users.

1.1 Aim and objectives

The aim is to review common applications of machine learning in everyday life and discuss their potential impact on users. The objectives are: (1) to identify familiar ML-enabled services; (2) to summarise benefits such as convenience and personalisation; (3) to discuss concerns about privacy, transparency, fairness and dependence; and (4) to suggest questions for future research with actual users.

2. Literature Review

Adomavicius and Tuzhilin (2005) reviewed recommender systems and described how personalised recommendations can help people navigate large amounts of information. Such systems are relevant to shopping, music, video and other online services.

Koren, Bell and Volinsky (2009) explained matrix-factorisation methods used in recommender systems. Their work helps explain how patterns in user–item interactions can be used to produce recommendations.

Mittelstadt et al. (2016) mapped ethical issues associated with algorithms, including opacity, accountability, bias and effects on individuals. These issues matter in everyday applications because users may not understand how a recommendation or classification was produced.

Taken together, this literature indicates that ML can support personalisation and prediction, but its benefits should be considered alongside privacy, fairness, transparency and accountability. This paper applies those themes to familiar digital services.

3. Methodology

This paper uses a descriptive literature-review approach. It summarises selected published sources relevant to recommendation systems and algorithmic ethics and applies their concepts to everyday ML-enabled services. It does not claim to have conducted a questionnaire, interviewed participants or collected original survey data.

3.1 Scope

The discussion focuses on common consumer-facing services, including social media and content recommendations, online shopping, navigation, streaming, spam filtering and voice-enabled systems. It considers perceived convenience and personalisation as potential benefits, and privacy, transparency, fairness and dependence as potential concerns.

3.2 Analysis approach

The sources and examples are organised thematically. The themes are: everyday uses; potential benefits; user awareness; privacy and security; and transparency and responsible use. Because this is a literature-based review, no participant counts or percentages are calculated.

3.3 Ethical considerations

The paper does not report human-participant data. If a future questionnaire is conducted, participation should be voluntary, the purpose should be explained, unnecessary personal information should not be collected, and all results should be reported accurately.

4. Everyday Applications of Machine Learning

Application	Everyday example	Potential user impact
Social media and content feeds	Ranking posts, reels or videos based on predicted interests	May help users discover relevant content; may also narrow what they see
Online shopping	Product suggestions based on browsing or purchase patterns	Can make product discovery easier; may influence buying choices
Navigation apps	Estimated travel times and route suggestions using traffic-related data	Can support route planning and save time; predictions may be inaccurate
Streaming services	Suggested films, songs or programmes	Can reduce search effort; may repeatedly recommend similar content
Spam and fraud detection	Flagging suspicious messages or transactions	May improve protection, but errors can occur
Voice-enabled tools	Speech recognition and voice commands	Can improve convenience and accessibility; performance may vary

Table 1. Illustrative examples of everyday ML-enabled services and possible user impacts. The table is explanatory and does not represent survey results.

5. Discussion

5.1 Convenience and personalisation

ML can help services sort large amounts of information and predict what may be useful to a user. For example, a navigation app can suggest a route, while a streaming platform can recommend content. These features may reduce the time users spend searching. However, usefulness depends on the quality of the data and the system's predictions.

5.2 Awareness

A person can use a service powered by ML without knowing that ML is involved. This means that frequency of use and awareness are different questions. A future survey could ask which services people use and whether they know that automated prediction or recommendation may be operating behind them.

5.3 Privacy and security

Some ML systems use data about activity, preferences, location or interactions, depending on the service and its design. Users may be concerned about how this information is collected, stored, shared or protected. Organisations should limit unnecessary data collection, explain relevant practices clearly and follow applicable data-protection requirements.

5.4 Transparency, fairness and dependence

Users may find it difficult to understand why a system recommends one item rather than another. Algorithmic systems can also produce unfair outcomes if their data or design contain bias. In addition, relying too heavily on automated suggestions may limit independent choices. Clear explanations, human oversight where appropriate and user controls can help address these concerns.

6. Recommendations

First, digital-literacy activities should explain ML in simple language and give everyday examples. Second, services should provide clear information about important recommendation and automated-decision features. Third, organisations should minimise unnecessary data collection and communicate privacy practices. Fourth, users should have practical controls over personalisation and privacy settings where possible. Finally, developers should assess systems for security, fairness, errors and unintended effects throughout their design and use.

7. Limitations

This paper is a literature-based review and does not contain original survey results. The discussion is based on selected published sources and examples, so it is not a comprehensive systematic review of all ML applications. It does not measure how many users are aware of ML or how strongly they feel about its benefits and risks. Future research could address these gaps by collecting genuine questionnaire responses from a clearly described sample and reporting the methods and results transparently.

8. Conclusion

Machine learning is part of many everyday digital services, including content recommendations, shopping, navigation, spam filtering and voice-enabled tools. These applications can offer convenience, personalisation and prediction, but they may also raise concerns about privacy, transparency, fairness and dependence. The selected literature supports the need to consider both benefits and risks rather than treating ML as entirely positive or negative. A future survey using real responses could provide more direct evidence about user awareness and experience. Until such data are collected, no numerical claims about user opinions should be presented as findings.

References

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