Use of Artificial Intelligence in Daily Life Applications

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Abstract:

Artificial Intelligence (AI) has evolved from being mainly an academic field to a widespread technology that touches many aspects of our everyday lives. This paper explores the current applications of AI in areas such as healthcare, education, smart homes, transportation, personal assistants, finance, and entertainment. It examines the advantages AI brings such as improved efficiency, personalization, accessibility, and better decision-making while also addressing potential risks, ethical concerns, and societal challenges, including privacy, fairness, transparency, and regulation. The study concludes with recommendations for the responsible use of AI in daily life and outlines directions for future research.

Keywords: *Artificial Intelligence, daily life applications, smart homes, healthcare, education, privacy, ethics, personalization etc.*

Introduction:

Artificial Intelligence (AI), the study and engineering of systems capable of performing tasks that traditionally require human intelligence, has undergone a remarkable transformation over recent decades. Once confined to research laboratories and highly specialized applications, AI has now permeated everyday life through a wide range of consumer devices, services, and public systems. The rapid advancement of AI technologies has enabled the development of "narrow AI" tools—systems designed to perform specific tasks with high efficiency and accuracy. These tools are now integral to modern society, powering recommendation engines on streaming platforms, virtual assistants on smartphones, and diagnostic aids in healthcare that assist doctors in detecting diseases with greater precision. In the field of education, AI supports adaptive learning platforms that personalize instruction according to individual student needs, enhancing both engagement and learning outcomes. Smart-home technologies leverage AI to automate lighting, temperature control, and security, offering users greater convenience and energy efficiency. Transportation systems increasingly rely on AI for navigation, traffic management, and even the development of autonomous vehicles, improving safety and reducing travel time. In the financial sector, AI algorithms detect fraudulent transactions, assess credit risk, and provide personalized financial advice, contributing to greater security and decision-making efficiency. Beyond these practical applications, AI also raises important societal questions, including issues of privacy, fairness, accountability, and transparency. As AI continues to expand into everyday domains, understanding both its benefits and potential risks is crucial. This growing presence of AI demonstrates its transformative potential and the need for responsible deployment, thoughtful regulation, and ongoing research to ensure that these technologies serve the broader interests of society.

Methodology:

This study presents a narrative literature review, drawing on peer-reviewed articles, systematic reviews, major institutional reports, and credible news sources published mainly between 2020 and 2023. The literature search focused on specific AI applications, including areas such as healthcare, smart-home privacy, and personalized learning in education, using academic databases and reliable aggregator platforms. Emphasis was placed on the most recent and influential reviews, as well as key policy reports, to provide a current understanding of both AI's technical capabilities and its societal impacts. Important references supporting claims in each domain are cited throughout the review.

Domains of Daily-Life AI Applications:

Healthcare and Personal Health Management:

AI has become increasingly significant in healthcare, supporting both clinical practice and personal health management. In clinical settings, AI applications include medical imaging analysis, decision-support systems, remote patient monitoring, and administrative automation. Machine learning models help radiologists interpret complex images, predict patient deterioration from electronic health records, and assist telemedicine systems in triaging patients effectively. On the personal level, AI-powered apps and wearable devices track vital signs, identify anomalies such as irregular heart rhythms, remind users to take medications, and provide early-warning alerts that help prevent hospitalizations. Research shows that these AI tools enhance diagnostic accuracy and streamline administrative processes, though challenges remain in clinical adoption, including ensuring validation, safety, and proper data governance.

Examples:

- AI tools in clinical imaging that highlight suspicious lesions for further review by radiologists.

- Remote monitoring applications that analyse patterns in sleep, gait, and vital signs to

Education and Personalized Learning:
Education:
AI is increasingly being integrated into educational settings, offering adaptive tutoring, automated assessments, personalized content recommendations, and analytics to support educators. Intelligent tutoring systems analyse students' strengths and weaknesses to adjust learning pace and difficulty, while automated grading tools provide timely formative feedback. Policy reviews and research highlight the potential of AI to enhance personalized learning, but they also stress the importance of transparent integration into teaching, proper teacher training, and safeguards to prevent bias or misuse.
Smart Homes and Personal Assistants:

In smart homes, AI powers voice assistants, home automation systems (including heating, ventilation, air conditioning, lighting, and security), and context-aware features such as reminders and scheduling. Technologies like computer vision and sensor fusion allow the system to recognize activities, improve safety, and optimize energy use. Smart-home AI raises significant privacy concerns due to continuous monitoring and data sharing across platforms. Researchers have proposed solutions, such as privacy-focused meta-assistants, to give users greater control over their personal data.

Transportation and Mobility:

AI has transformed daily travel by supporting route optimization, traffic prediction, ride-hailing surge-pricing algorithms, and advanced driver-assist systems. Public transportation benefits from AI-driven scheduling and demand forecasting, while navigation applications use real-time data to reroute users and provide accurate arrival estimates. These technologies improve convenience and efficiency and they also pose challenges for labour markets, such as drivers, and demand rigorous safety validation as automation levels increase.

Finance, Shopping, and Personal Productivity:

In the financial sector, AI is widely used for fraud detection, credit scoring, dynamic pricing, personalized offers, and intelligent budgeting tools. E-commerce and streaming platforms employ machine learning recommendation systems to present users with relevant products or content. Productivity applications, such as email triage tools and automated meeting summarizers, streamline routine tasks and save time. AI in these areas raises important concerns regarding algorithmic transparency, fairness, and potential manipulation through targeted content.

Entertainment and Social Interaction:

AI enhances entertainment and social experiences by generating personalized playlists, recommending media, and enabling procedural content creation in video games. It also powers deepfake technologies and assists social platforms in content moderation and trend detection. While these applications improve user engagement and convenience, they have complex social consequences, including the formation of echo chambers and the amplification of misinformation.
Benefits of Daily-Life AI
Personalization and Accessibility:

AI enhances personalization by tailoring services such as education, content recommendations, and health reminders to meet the unique needs of individual users. This increases relevance and engagement across diverse populations. Additionally, AI-driven accessibility features, including speech-to-text conversion and automated image captioning, help expand inclusion for people with disabilities, making digital and physical environments more accessible.
Efficiency and Time Savings:

AI improves efficiency by automating administrative and routine tasks, such as clinical documentation, email drafting, and intelligent scheduling. These tools reduce the workload for both professionals and everyday users. Surveys show that clinicians increasingly rely on AI systems to handle documentation and other repetitive tasks, allowing more time for direct patient care and decision-making.
Improved Decision Support:

In areas such as healthcare and finance, AI supports human decision-making by identifying patterns, trends, and probabilistic predictions that may be challenging for humans to recognize unaided. AI helps to improve accuracy, consistency, and outcomes in critical decision-making processes by augmenting human judgment,
Safety and Preventive Care:

AI-powered monitoring and anomaly detection systems enable preventive interventions. For example, continuous tracking of vital signs or movement patterns identify fall risks in elderly populations, allowing timely action to prevent accidents. Such preventive measures have the potential to reduce emergency incidents, improve quality of life, and lower associated healthcare costs.

Risks, Limitations, and Ethical Concerns: Risks and Ethical Concerns of Daily-Life AI

Privacy and Data Governance:

Many AI systems in daily life rely on continuous or extensive personal data, including audio, video, and health metrics. If data collection and sharing practices are poorly designed, there is a heightened risk of surveillance, data breaches, and unauthorized profiling. To address these concerns, technical and policy solutions such as on-device processing, data minimization, and user-controlled meta-assistants have been proposed to give individuals greater control over their personal information.
Bias and Fairness:

AI systems inherit and amplify biases present in their training data, potentially leading to discriminatory outcomes in areas such as lending, hiring, or clinical decision-making. Mitigating these risks requires rigorous evaluation, the use of representative datasets, and fairness-aware training methods to ensure equitable outcomes across diverse populations.
Transparency and Explainability:

Many contemporary AI models, particularly deep learning systems, are often considered "black boxes," making it difficult to understand how they reach specific decisions. This lack of explainability undermine trust, complicate regulatory compliance in domains like healthcare and finance, and limit auditability. Techniques in Explainable AI (XAI), along with thorough documentation practices such as model cards and datasheets, are recommended to improve transparency.
Safety and Reliability:

In safety-critical applications, including medical diagnoses and autonomous driving, AI systems require rigorous validation, continuous monitoring, and human-in-the-loop safeguards. Domain-specific regulatory frameworks and clinical trials for AI tools are increasingly emphasized to ensure that these systems operate reliably and safely under real-world conditions.
Socioeconomic and Labor Impacts:

The automation of routine tasks through AI displaces certain job functions while simultaneously creating demand for new skills and roles. To manage these transitions effectively, strategies such as workforce reskilling, robust social safety nets, and human-centred system design are essential. These measures help ensure that the workforce adapt to technological changes while minimizing negative socioeconomic effects.
Misuse and Malicious Uses:

Generative AI technologies, including deepfakes and automated phishing tools, introduce new risks related to fraud, misinformation, and coercion. To counter these threats, ongoing research focuses on defensive strategies such as digital watermarking, detection algorithms, and proactive regulatory measures. These approaches aim to reduce the potential for AI misuse while maintaining the benefits of the technology.

Regulation, Governance, and Best Practices:
Policy and Institutional Guidance:

Governments and institutions are increasingly providing guidance on the responsible use of AI in sensitive areas such as education and healthcare. In education, authorities recommend clear policies regarding AI use in coursework, assessments, and maintaining academic integrity. In healthcare, professional organizations emphasize the importance of validating AI tools, ensuring transparency, and protecting patient data to maintain trust and safety.

Technical Best Practices:

To support safe and responsible AI deployment, several technical practices are recommended:

- Privacy-by-design: Implement on-device processing and minimize data retention to protect user information.

- Robust evaluation: Use cross-validation, external datasets, and continuous post-deployment monitoring to ensure reliability.

- Documentation: Provide detailed model cards, datasheets, and user-facing explanations to improve transparency.

- Human oversight: Maintain human involvement in high-stakes decisions to ensure accountability and safety.

- **Ethical Frameworks and Public Engagement**
  Involving key stakeholders—including users, domain experts, and ethicists—in the design and deployment of AI helps improve acceptability and reduce potential harms. Transparent communication, alongside digital literacy programs, enables the public to better understand both the benefits and limitations of AI in everyday life, fostering informed adoption and responsible use.

Future Directions and Research Agenda

- **Better Personalization with Privacy:**

  Future research should focus on achieving personalization while minimizing the need for centralized sensitive-data collection. Techniques such as federated learning, differential privacy, and on-device models help deliver tailored experiences without compromising user privacy.

- **Explainability that Matches End-User Needs:**

  Explainable AI (XAI) efforts should prioritize explanations that are understandable and actionable for everyday users, not just technical experts, ensuring that AI outputs are transparent and useful in daily contexts.

- **Robustness, Safety, and Regulatory Science:**

  There is a need for more real-world evaluations, longitudinal studies, and standardized measures of safety and efficacy, particularly in sectors like healthcare and transportation. Regulatory science that connects technical validation with policymaking will be crucial for safe and reliable AI deployment.

- **Socio-technical Studies of Adoption:**

  Research into user behaviour, trust dynamics, and socioeconomic impacts guide equitable AI rollouts. Interdisciplinary approaches combining human-computer interaction, ethics, and economics will help ensure that AI systems are deployed responsibly and inclusively.

- **Mitigating Misinformation and Abuse:**

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  Ongoing research into content provenance, digital watermarking, standardized tracking of media origins, and automated detection of manipulated content will remain essential to prevent misuse of AI technologies and combat the spread of misinformation.

Conclusion:

The integration of AI into daily life offers clear benefits, including greater convenience, personalized experiences, improved efficiency, and enhanced accessibility for diverse users. At the same time, these advantages are accompanied by significant challenges, such as privacy risks, potential biases, opaque decision-making processes, and safety concerns. Addressing these issues requires coordinated efforts across technical design, institutional practices, and policy frameworks. Responsible AI deployment depends on privacy-preserving architectures, thorough evaluation, transparent communication, and inclusive governance. With

careful research, thoughtful regulation, and stakeholder engagement, AI has the potential to provide equitable, trustworthy, and meaningful benefits in everyday contexts.

References:

1. Bajwa, J., Munir, U., Nori, A., & Williams, B. (2021). Artificial intelligence in healthcare: transforming the practice of medicine. *Future Healthcare Journal, 8*(2), e188–e194. https://doi.org/10.7861/fhj.2021-0095

2. Faiyazuddin, M. (2022). The Impact of Artificial Intelligence on Healthcare. *PubMed Central*. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11702416/

3. U.S. Department of Education. (2022). Artificial Intelligence and the Future of Teaching and Learning: Insights and Recommendations. *Office of Educational Technology*. Retrieved from https://tech.ed.gov/ai-report/

4. Orlowski, A. (2022). The case for a privacy smart home meta-assistant. *SpringerLink*. https://doi.org/10.1007/s00146-025-02182-4

5. The Guardian. (2022). One in five GPs use AI such as ChatGPT for daily tasks. *The Guardian*. Retrieved from https://www.theguardian.com/society/2022/sep/17/one-in-five-gps-use-ai-such-as-chatgpt-for-daily-tasks