



THE AGE OF SMART LIVING HOW AI IS SHAPING OUR DAILY LIVES IN REAL TIME

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ABSTRACT

Artificial intelligence (AI) is being applied in real-time applications across many industries, such as healthcare, finance, retail, transportation, and customer service. Technologies such as generative AI, edge computing, natural language processing, stream analytics, and autonomous agent systems are used by real-time AI to offer real-time insights, customized experiences, and anticipatory automation. Applications range from real-time medical diagnostics, dynamic pricing for e-commerce, autonomous navigation for cars, to detecting fraud in the financial services industry. AI provides greater operational effectiveness, precision, and scalability, enhances security and safety, delivers enhanced personalized user experiences, and releases human resources for strategic functions. Challenges, however, include job replacement, ethics, and the requirement for robust infrastructure to deal with vast volumes of data. There is a privacy concern because AI continuously examines personal information, and heavy dependence on self-managing AI can reduce human control and create accountability challenges.

Keywords: Artificial Intelligence, Generative AI, Edge Computing, Natural Language Processing, Stream Analytics, Autonomous Agent Systems.

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1. Introduction

Artificial Intelligence (AI) has evolved from a dream to a part of common existence, driven by technological advancements, mass adoption, and slow integration into the majority of aspects of contemporary culture. AI was initially introduced as remote or unachievable in science fiction, but with the doubling of computing power and digital data, it has become more accessible and omnipresent. Technological advances in machine learning, cloud computing, and AI services have enabled systems to identify patterns, learn from experience, and make real-time decisions. AI is increasingly enabling ubiquitous products like digital personal assistants Google Assistant, Alexa, and Siri, which command smart home devices and manage schedules. Recommendation algorithms produce personalized experiences, and AI in banking helps track transactions, prevent fraud, and manage investment portfolios. AI also aids in healthcare, transport, and communication, boosting economic production and creativity by automating mundane work and enhancing human skill at the workplace. AI's integration into daily habits, such as facial recognition and automated emails, has charmed us into considering it a part of our daily lives. History has been characterized by the presence of AI with society, communication, and daily convenience.

AI is a part of daily life and touches various aspects of our life, job, and technology interactions. AI is used in personal assistants, smart homes, and so much more, for instance, scheduling, appliances, and security. AI has the provision of personalized experiences, which build suggestions and content across many platforms. These include entertainment suggestions, news aggregations, and personalized shopping experiences. Some people use meal planning and health management apps to suggest meals and life changes based on activity data and diet preferences [1]. Application of AI well-being and health: Fitness trackers and wearable tech track the recording of vital signs, sleeping patterns, and activity levels and give early advice on health. Another widespread example of AI automation exists in the form of apps that guide navigation, facial recognition features, email spam filters, customer service robots, and internet search engines. It also makes professionals more efficient by automating repetitive work such as data analysis and email composition so that the human can focus on doing more value-added

work. Overall, AI is transforming the way we work and live, making it an important tool in our lives [2].

AI is transforming the way individuals interact with smart devices and technology, making them more efficient, personalized, and intuitive. Virtual assistants like Siri, Alexa, and Google Assistant can identify natural language and execute voice-based commands, book appointments, manage smart home devices, and deliver information at pace. AI also facilitates smart home automation, with the ability of appliances to adapt to your daily routine and environment, making your home safer and more comfortable. AI algorithms select content for news feeds, shopping apps, and streaming services based on your interests and usage habits, providing personalized content and proactive suggestions. This hyper-personalization increases your enjoyment. AI is utilized by smartphones to extend battery life, improve images, and provide on-device AI capabilities for faster, more consistent response times. It also supports accessibility features and live translation to assist users who have disabilities and bridge language gaps [3]. AI works behind the scenes to power such activities as summarizing calls or documents, detecting money laundering in transactions, screening out spam emails, computing best navigation routes, and powering customer service chatbots.

AI also appears in wearables and healthcare apps to monitor vital signs, sleep, and exercise activity, providing personalized information and notifications to improve health. User behavior is leveraged in future-proof AI operating systems to anticipate your needs, recommending settings or apps on a temporal or context-specific basis, making technology usage more convenient and proactive [4]. Artificial intelligence (AI) is revolutionizing virtually all aspects of daily life, from communication to security, navigation, and services.

AI in navigation apps like Google Maps and Waze uses real-time traffic analysis to provide smarter, safer routes. It even uses predictive routing based on weather, time, and historic patterns of travel. AI further detects hazards, delays, and roadblocks, alerting passengers in real time and adjusting ETAs accordingly. Face recognition is another AI-powered feature that offers secure and seamless unlocking of phones. It uses continuous learning to maintain high precision and security and adjust to changes like beards, aging, and glasses. AI also improves security and privacy by storing biometric data in secure device-local storage. AI tools like Gmail Smart Compose assist in faster and more precise communication using intelligent email composition.

It also improves clarity and professionalism in writing by tone and grammar adjustments. Personalized templates improve with time. Automated customer service bots

provide quick, reliable assistance, responding to frequently asked questions on websites, applications, and smart devices around the clock. They understand user intent through natural dialogue, respond to inquiries, fix problems, and even refer cases to human agents when necessary. Continuous improvement is achieved through machine learning, which increases their knowledge base and boosts accuracy with every conversation. AI chatbots offer assistance across online, SMS, and voice channels with one user experience. AI is revolutionizing industries by automating the drudgery with machines, giving rise to new careers such as AI trainers, ethicists, data scientists, and maintenance engineers.

It is revolutionizing the character of health care, education, and the creative industry demanding hybrid careers that combine AI-derived insights with human sensitivity and creativity. The repetitive jobs are being taken over by AI-powered systems. This has decreased the need for human workforce in those areas. AI technology is being integrated into most existing jobs, which focus on high-level problem solving, creativity, and social skills. New categories of employment are coming up, such as ethical governance, monitoring, and AI development. Increased productivity and economic growth, which occur with AI, can be an access path to new jobs. By 2030, as many as two-thirds of jobs could be displaced by artificial intelligence. However, anticipating the future, business can develop different workforce adaptations based on reskilling and upskilling. Analyzing business KPI data can help business develop its tech solutions, such as the social services app SWAN, by using AI for automating jobs so that more efficient process productivity can be freed up for human-centric jobs that are of higher value. In 2025, fast growth in AI changes how we live, work, and engage with technology.

The kinds of AI generative models include GPTs and multimodal models that transform businesses through the production of advanced content, the delivery of real-time user experiences personalized to users. Fully autonomous AI systems are presented in the form of digital AI agents and physical robots, improving automation in manufacturing, service, and logistics domains through learning, adaptation, and effective human engagement in intricate contexts. New models of interaction are being based on the usage of natural language-understanding AI systems along with multimodal inputs and context to collaborate with humans as smart assistants, thereby enhancing productivity through augmented intelligence [5]. The AI workloads explosion is driving the scaling of compute and infrastructure, demanding innovations in the design of chips, cloud computing, as well as edge AI devices. Smart devices powered by artificial intelligence run on PCs, wearables, smart home appliances, and the like,

ensuring real-time processing, personal automation, and intuitive usability even without constant connectivity.

Ethical and responsible AI is taking center stage, ensuring open, fair, accountable, and human-centric AI systems. It involves dealing with bias, security, and privacy issues, and establishing trust, making the technology worthwhile to be used for a longer period in time. With the embedding of AI in digital ecosystems, it develops real-time intelligence and independent decision-making capabilities, rewriting business rules and the ways people live their lives [6].

2. Methodology for Understanding AI's Future Impact

Generative AI is transforming problem-solving and creativity in businesses by augmenting instead of displacing human creativity. It can generate unique ideas, designs, advertising campaigns, and content that are not visible through human instinct itself. Generative AI encourages divergent and exploratory thinking, helping businesses explore new possibilities and solutions that transcend conventional thinking. Generative AI streamlines content creation, shortening time-to-market and increasing content productivity. It also enables individualized customer experiences through utilizing user behavior and data to personalize marketing messages, service interactions, and recommendations in line with each user's preferences. Generative AI drives strategic innovation by replacing reactive task automation, and this allows firms to constantly innovate workflow and business models. It supports rapid simulations, experimenting with new concepts, and securely optimizing procedures for deployment. Studies reveal that generative AI models, specifically large language models, expand human creativity through new ideas and alternative viewpoints, producing outcomes equal to or even superior to conventional collaborative methods such as crowdsourcing. Generative AI also supports decision-making with the provision of information synthesis, fact-checking, and scenario-based predictive models, making strategic decisions more effective in areas such as resource planning, demand forecasting, and risk assessment [7].

Artificial intelligence is transforming many disciplines, such as literature, design, music, and software programming. Its multimodal properties support more enriched creative products and more sophisticated problem-solving. Real-time functions, like interactive video production and live language translation, are now increasingly prevalent. AI agents can now generate new ideas, adjust their style dynamically, and complete creative loops with people. Contextual comprehension and higher-order reasoning abilities are also enhancing, enabling AI

to resolve logical, multi-step problems. As AI technology grows, it will be increasingly capable of understanding context and emotion more precisely, enabling more targeted interactions and solutions to be more human-like [8]. Personalized solutions are being delivered by AI by examining user preference, industry norms, and past creative work.

Domain-specific open-source-based models may be used to create AI for a particular creative purpose. Open-source innovation allows for more people to contribute to, share, and build upon innovative AI solutions. AI solutions are more and more integrating with IoT, AR/VR, and robots to solve creative problems in virtual as well as physical worlds. Ethical, transparent, and accountable AI practices continue to evolve to deliver equitable, explainable, and accountable solutions. Continuous feedback cycles will help systems improve their innovative approaches and solution precision with time [9]. Artificial intelligence is transforming the art creation and designing process by working in tandem with humans.

The ability of AI to process large datasets, learn art styles, and create new content is deployed in this collaboration. This co-creation involves intuitive and interactive interfaces, where artists leverage inputs like voice, gaze, and hand gestures to produce digital art or 3D designs. AI algorithms produce new work from artist-specified parameters, facilitating experimentation into new ways of expression. AI is a set of creative tools that allow artists to create new art and design elements using adaptable models and algorithms. AI also encourages human creativity because it offers alternative ideas, endless iterations, and embedding inspirations from various art schools. It also supports multimodal and real-time collaboration, which allows for smooth art and design that can adjust dynamically based on audience interaction or artist input. AI unites AI computation and human imagination, combining machine innovation and human nature. This synergy ushers in interactive media, architecture, fashion design, and storytelling beyond traditional art, providing new understandings and possibilities for design [10]. AI will become a central part of daily life, the workplace, and society by 2035.

It will be as ubiquitous as Wi-Fi or electricity, enabling AI systems to automate functions and provide personalized experiences. Advanced AI capabilities, such as large language models, generative AI, and vision and reasoning models, will be designed to address complex problems across various industries. AI will be coupled with emerging technologies such as 5G, AR/VR, IoT, brain-computer interfaces, and quantum computing to enhance human-machine collaboration. AI will also transform the workforce to design new jobs requiring strategic thinking, creativity, and social skills [11]. A majority of jobs will be human-

AI partnerships, enhancing human capacities and restructuring the composition of the workforce. Ethics, governance, and trust will become the focus to reduce concerns such as bias, privacy violation, and job loss.

Global cooperation and governance mechanisms will be needed to ensure that AI development aligns with human values and society's interests. Hyper-personalization and personal AI agents will be accessible to perform complex tasks, for instance, financial planning and health tracking. AI-powered channels will centralize communication and provide round-the-clock consumer support. AI-hosting data centers will become highly optimized and carbon-neutral, allowing for AI workloads without compromising the environment. AI will also co-create new forms of art, design, and invention, inspiring new creative approaches and problem-solving methods [12].

By 2025, AI will profoundly change everyday life with several innovative technologies. They are generative AI, which drives content creation, design automation, and simulation environments, and edge computing and edge AI, which give ultra-low latency, privacy, and dependability for real-time decision-making in intelligent homes, industrial automation, self-driving cars, and health monitoring. Technological innovations in natural language processing (NLP) are making it possible for AI systems to understand, generate, and converse in human language, creating more effective and personalized interactions in real life. Contemporary stream processing platforms allow AI to handle enormous volumes of real-time information with low latency, enhancing responsiveness and automation in the physical world [13].

Personalization and predictive engines are fueling hyper-personalization in e-commerce, entertainment, and learning through real-time content, recommendation, and experience adaptation to individual behaviors and interests. Quantum computing can accelerate solving intricate problems, including drug discovery, cryptography, and optimizing logistics. Agentic and autonomous artificial intelligence systems are handling complex operational responsibilities without ongoing human oversight, with systems that actively plan and optimize for users instead of simply responding. Ethical and interpretable AI models are key technologies as AI's contribution to sensitive real-time choices increases. Multimodal AI systems combining text, visual, voice, and sensor inputs deliver an enhanced contextual understanding and enable digital healthcare coaches, intelligent home management, and advanced driver assistance applications [13]. Future real-time AI technologies in everyday life are:

1. Generative AI and Natural Language Processing (NLP):

- Employs advanced NLP to generate human-like conversations, create content, and interpret commands.
- Enhances common app usability with contextually sensitive, personalized output.

2. Edge AI and Real-Time Data Processing:

- Processes information on-device, supporting real-time response without remote servers.
- Supports instant analytics and action, such as self-driving vehicles navigating traffic conditions or health trackers offering real-time feedback.

3. Real-Time Personalization and Multimodal AI:

- Leverages real-time information, frequently acquired through multimodal AI, to update suggestions or personalize digital environments constantly.

4. Stack-wide Explainable, Ethical AI:

- Guarantees open, fair, and compliant decisions in the most important areas such as healthcare and finance.

5. Quantum Computing and AI:

- Seeks to accelerate computations needed for optimization.
- Augments abilities of all other technologies in the ecosystem.

6. Autonomous and Agentic Systems as Conductors:

- Functions as conductors, actively managing tasks and environments.
- Examples include a home AI agent which interconnects multiple branches of tech in real time.

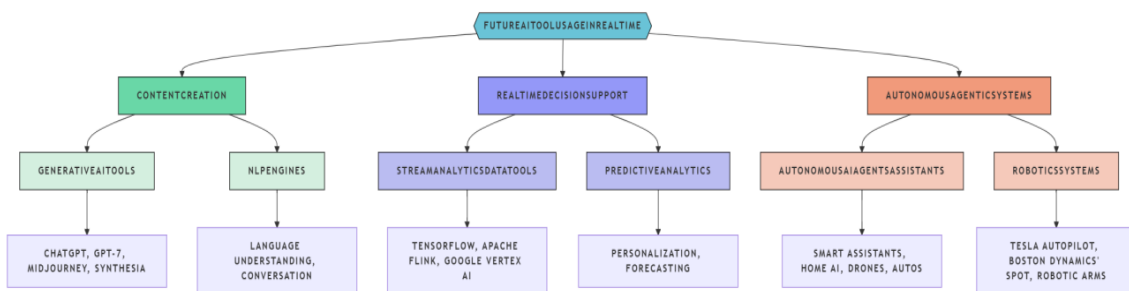


Figure 1: Future AI Tool Usage In Real-Time

The above Figure 1 illustrates the future technologies influencing real-time AI in everyday life, arranged as branches from a central AI ecosystem core. It illustrates their interactions, roles, relationships, and regions of influence as:

- **Generative AI:** Real-time generation of text, images, videos, and audio for communication and content generation.
- **Natural Language Processing (NLP):** Offers natural dialogue and real-time language understanding for chatbots, virtual assistants, and multilingual support.
- **Decision Support & Insights in Real Time:** Real-time alerts and automated responses through stream analytics and data processing.
- **Predictive Analytics and Personalization:** Real-time prediction models for financial projections, health tracking, and customer suggestion.
- **Agentic and Autonomous Systems:** Autonomous AI Agents & Assistants and autonomous robotics and cars.
- AI ecosystems increase efficiency, safety, and personalization by merging content generation, data-driven decision-making, and autonomous work.

AI technology will become an essential part of people's everyday lives and business decision-making by 2035, driving innovation, productivity, and personalization across sectors such as manufacturing, health, and finance. Advanced Large Language Models (LLMs) will be extremely dependable tools for handling knotty issues and enabling high-level communication. AI will integrate with new technologies such as brain-computer interfaces, 5G, IoT, augmented reality, virtual reality, and quantum computing to make possible new forms of interaction. AI agents will extend beyond recommendation to plan and carry out sophisticated workflows on their own, as "virtual coworkers" that intelligently collaborate with humans and simplify difficult tasks. Advances in deep learning and neural networks will make it possible for AI to comprehend, generate, and work with complex data in different modalities such as context and emotional awareness [14].

Multimodal machine learning and real-time edge AI will make it possible to have low-latency, real-time processing on devices themselves for use in applications such as wearables, smart home, and autonomous systems. Ethical, transparent, and accountable AI will be needed to create trust and make AI systems human-focused and accountable. Efficient and sustainable AI hardware will be attained through going carbon-neutral and utilizing renewable energy sources such as solar, geothermal, and hydrogen fuel cells. Healthcare will also be

revolutionized by AI through speeding up drug discovery, virtual health assistants, early disease detection, real-time monitoring of health, and rapid DNA analysis. Brain-computer interfaces and neurotechnology will have applications across many areas, creating new possibilities for control and interaction between humans and machines [11].

The following figure 2 illustrates that 75% of company leaders utilize generative AI for content or automation, and 42% of U.S. consumers utilize chatbots or AI virtual assistants on a weekly basis. By the year 2027, 15-50% of business processes will be AI-automated, yielding cost and productivity gains. 50% of businesses plan to employ AI agents in the next year, and 10% have already implemented them for autonomous job management. With over 15.1 billion AI-enabled devices worldwide, AI-powered customer support speeds up resolution times and reduces support expenses [15].

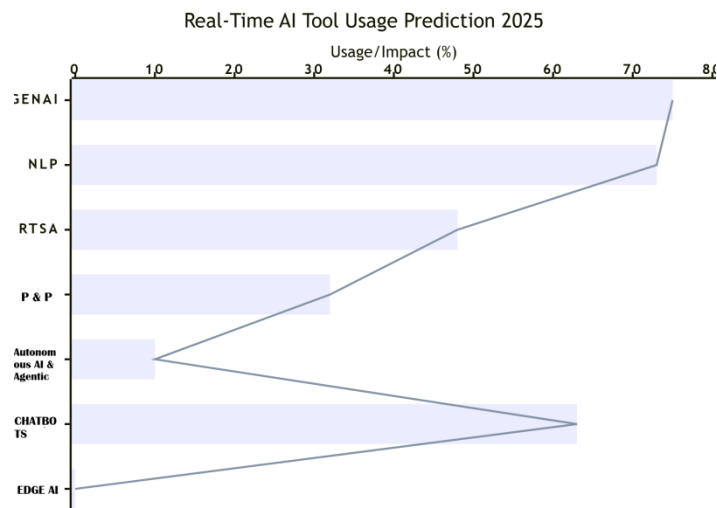


Figure 2: Real –Time AI Tool Usage Prediction 2025

The below Table 1 describes that how to emphasize the significant role of AI tools in real-time applications in 2025 and beyond. Artificial Intelligence (AI) plays a crucial role in real-time applications, such as content production, natural language processing, edge computing, and AI in autonomous vehicles, smart homes, and wearable technology. AI automation and content production are essential for quick, imaginative automation, quality assurance, and moral considerations. Natural language processing is used by 73% of customer service systems, improving communication and round-the-clock assistance. Edge computing and AI reduce latency, speed, and privacy, while AI in big data is used by 48% of businesses. Predictive and customized engines are used for online shopping and adaptive learning, increasing revenue by 32%. AI systems that are agentic and autonomous manage tasks, reducing human labor and improving efficiency. Ethical and explainable AI is essential for

openness, equity, and control in legal, finance, and healthcare sectors. Trade-offs between complexity, explainability, and accuracy must be considered.

Table 1: Future AI Tool Usage and Impact in Real-Time Applications (2025)

AI Tool / Technology	Real-Time Application Examples	Predicted Usage / Impact	Challenges / Considerations
Generative AI	Text/image/video generation, code generation	75% business leaders use generative AI	Quality control; ethical concerns
Natural Language Processing (NLP)	Virtual assistants, chatbots, translation	73% customer support platforms use NLP	Context accuracy; bias in language models
Edge AI & Edge Computing	Wearables, smart homes, autonomous vehicles	15.1 billion AI-enabled edge devices globally	Limited compute power on devices
Real-Time Data Processing & Stream Analytics	Fraud detection, predictive maintenance, smart cities	48% businesses use AI in big data	Data volume and integrity
Predictive & Personalization Engines	E-commerce recommendations, adaptive learning	32% revenue increase reported with AI use	Over-personalization risks
Agentic & Autonomous AI Systems	Home AI agents, self-driving cars, industrial robots	10% companies deployed, 50% planning adoption	Ethical decisions, accountability
Explainable & Ethical AI	Healthcare diagnostics, finance, legal AI	68% global demand for AI regulation	Complex explainability vs. accuracy tradeoffs

3. Conclusion

Artificial intelligence (AI) is transforming our lives, work, and interactions with new-age technologies such as generative AI, edge computing, autonomous agents, and real-time data analysis. AI will touch all industries by 2025, making intelligent decision-making, self-managing operations, and very personalized experiences a reality. AI will augment human capabilities and automate mundane tasks, enabling humans to exercise empathy, creativity, and strategic thinking. To ensure trust, equity, and regulatory compliance, explainability and ethical concerns are fast becoming essential. Societies and business are embracing responsible AI governance to offset the risks and benefits of innovation.

AI agents will perform sophisticated operational tasks in personal life, healthcare, finance, and logistics with limited human intervention. Integrating vision, language, audio, and sensor information will allow AI systems to integrate multimodal and generative AI, allowing deeper understanding and interaction in smart homes, healthcare monitoring, education, and entertainment. Edge AI for real-time reaction will favor wearables, autonomous vehicles, and

industrial automation. AI adoption will transform sectors, generating more demand for data scientists, AI experts, and digital transformation specialists. Explainable, responsible, and ethical AI governance will determine the long-term sustainability of AI technologies and public confidence.

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