Emerging trends and applications of generative AI

Context

In the last few years, generative AI has gained notable attention across all industries and sectors. Generative AI is a sub-field of artificial intelligence which uses machine learning to generate original content and synthetic data.

Due to new advancements in technology, generative AI seems to have promising use cases, which can be implemented in various domains to:

- improve the performance of natural language processing (NLP) models
- generate content – art, music and storytelling
- improve emotional intelligence to understand human interaction
- facilitate mail or document summarisation, language translation, etc.
- streamline workflows to make them more efficient.

pwc

Latest evolutions in generative AI

Multimodal capabilities:

Multimodal capabilities draw outputs from combinations of multiple data such as text, images and audio to provide responses such as structured content, insights and more. Multimodal models are equipped to understand and generate both textual and visual information and emerging as powerful tools for tasks ranging from image description to creative content generation.

Personalisation and customisation:

Generative AI is evolving to provide personalised content recommendations, adaptive user interfaces, and individualised learning materials by using a variety of machine learning algorithms and techniques. This capability caters to the growing demand for more user-centric applications across various platforms.

Real-time applications:

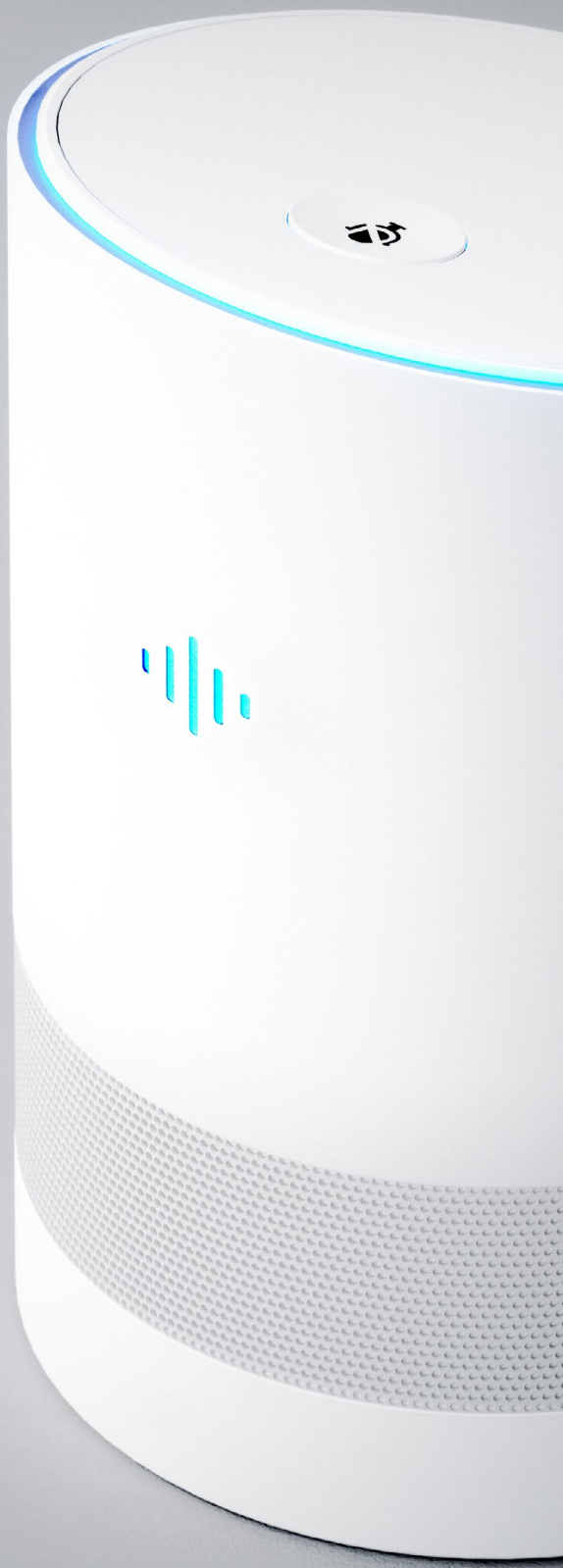
The demand for real-time capabilities is pushing generative AI into dynamic scenarios. From instant language translation to live event content creation and summarising the content on the web, the ability to generate information on the fly is becoming a hallmark for the next generation of AI applications.

Advancements in language models:

Language models are constantly evolving and demonstrating improved natural language understanding with each upgrade. These advancements are leading to the creation of more sophisticated and adaptable AI systems.

Creative content generation:

Generative AI has been expended beyond language to generate artistic works – such as creating music compositions and enabling interactive storytelling. This is a paradigm shift that transforms AI into a collaborator in creative processes.



Modern applications of generative AI

Content creation and copywriting

Generative AI is becoming a valuable asset in content creation, with several AI tools having gained dominance in the market for content creation.

Chatbots and virtual assistants

Use of generative AI in chatbots and virtual assistants is transforming customer support and user interaction. Dynamic and context-aware responses are provided by these AI systems, resulting in a more natural and efficient experience for users.

Artistic creations

Generative AI applications have changed the art world. AI-generated artworks and music compositions are posing a challenge to the traditional notions of creativity, allowing new avenues for exploration and collaboration.

Code generation and programming

Generative AI is providing developers with support for code generation with different tools. From automating repetitive tasks to suggesting code snippets, AI is becoming an integral part of programming.

Medical imaging analysis

With generative AI, medical imaging analysis in healthcare domain has improved significantly. Furthermore, AI models are helping healthcare professionals to diagnose and plan treatments by generating results from complex medical images. Generative AI techniques like generative adversarial networks (GANs), variational autoencoders (VAEs) are used for medical imaging analysis.

Educational content generation

Generative AI is transforming the education sector with its ability to provide virtual tutors, personalised content, learning record tracking and feedback using AI education generators. It's also been used to develop interactive games which help young children to develop their academic, communication and social skills.

Language translation services

AI applications have gained users' attention with its ability to provide more accurate language translations which go beyond word-to-word translation. Generative AI is capable of providing context-based and more accurate translations in multiple languages, covering cultural context, and thus helping users to communicate effectively across the globe.

Conclusion

As generative AI continues to strengthen its hold across industries and sectors, we expect to see significant improvements in work efficiency, medical diagnosis, road and vehicular safety, among other applications. Due to the constantly evolving nature of this technology, it is only a matter of time when generative AI applications will become an integral part of our daily lives.

About PwC

At PwC, our purpose is to build trust in society and solve important problems. We're a network of firms in 151 countries with over 360,000 people who are committed to delivering quality in assurance, advisory and tax services. Find out more and tell us what matters to you by visiting us at www.pwc.com.

PwC refers to the PwC network and/or one or more of its member firms, each of which is a separate legal entity. Please see www.pwc.com/structure for further details.

Contact us:

Ashootosh Chand
Partner, Emerging Technologies
PwC India
ashootosh.chand@pwc.com

Indrojeet Bhattacharya
Executive Director, Emerging Technologies
PwC India
indrojeet.bhattacharya@pwc.com

Debankur Ghosh
Director, Emerging Technologies
PwC India
debankur.ghosh.in@pwc.com

Krishanu Pathak
Manager, Emerging Technologies
PwC India
krishanu.pathak@pwc.com

Contributor

Bhagyashri Itankar

Editorial support

Rashi Gupta

Design

Harshpal Singh

pwc.in

HS/January 2024 - M&C 34325