Maximize the Power of AI
Use the technology to gain a competitive advantage

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We are moving toward an era when artificial intelligence (AI) will impact every aspect of our lives. Computer-based machine learning uses large data sets to train algorithms for use in various applications to provide the basis for AI. Recently, AI has made a significant leap in progress with the release of generative AI systems (e.g., ChatGPT). Generative AI is also referred to as a large language model (LLM) because it is trained on enormous data sets to provide human-like natural language interactions. LLMs are now being specialized and embedded into nearly any type of computer system to provide enhanced functionality and optimization.

To explain the opportunity represented by AI, consider its role as an enhancement to existing computer systems within any process. In a manufacturing value chain, there are the functions of R&D, production, distribution, sale and resale, and servicing. Each of these areas can be made more efficient with AI.

For engineers, coding environments and CAD/CAM design systems empowered by AI facilitate accelerated product development cycles. AI-driven supply chain analytics promise to revolutionize procurement, inventory management and transportation logistics. Marketing and sales efforts are bolstered by AI tools that can identify lucrative opportunities with precision and speed.

AI is driving a paradigm shift in customer engagement and marketing strategies. We have grown used to recommendation engines powered by machine learning algorithms that analyze consumer behavior and preferences to deliver personalized product recommendations and enhance customer satisfaction.

Another recognizable implementation of AI is chatbots and virtual assistants. These AI-driven programs provide 24/7 support to extend the reach of sales programs, resolve customer queries and facilitate seamless experiences across multiple channels.

Hardware products and related services delivered to customers can be AI enabled for enhanced value. In our industry, the inclusion of an LLM-enabled user experience via product interfaces will help decrease operational errors and increase customer satisfaction. AI applications for fleet administration can optimize equipment placement, energy management and fleet sizing. Predictive service methods are already a reality and will continue to improve. Within all of this, of course, AI will shape the way office workers interact with documents and information through print correction and image adjustment, as well as intelligent workflow data extraction and behavioral-based automation.

Vendors that provide tools with AI capabilities showing tangible benefits will outperform and outcompete those that do not. Manufacturers and resellers that strategically adopt AI capabilities into their internal processes will do the same.

Despite the rapid advancements and potential, there are still limitations that require caution before blindly adopting everything AI. Legal considerations loom large, particularly concerning data privacy and intellectual property (IP) rights through data leakage, where data used for training AI models may inadvertently be included in generative AI responses. This is of particular concern if the generated content includes the IP of a third party without its consent, as you could be unknowingly held liable for infringement.

An additional concern is your own company's IP leaking out into the open-source community. Avoid providing a public generative AI tool with proprietary information — both company IP and personal data. The latter is to ensure your software systems allow you to properly secure proprietary data from being used in the vendor's AI training. Discuss these issues with your hardware and software system providers. They should be able to explain their safeguards, both from a contractual standpoint and with the use of their products.

And, as we all may have experienced, AI (much like human intelligence) is not always correct. Poorly implemented AI use cases have the potential to cause more damage than good. In the case of humans, it seems natural to call each other out when mistakes are made and correct any issues. This should apply similarly to AI, but is inherently more difficult because of the black box in which the algorithms are trained. When implementing an AI process, a best practice is to prototype and evaluate your systems before a full-scale production deployment.

Is AI potentially the greatest disruptive technology ever for humankind? Perhaps. We can certainly conclude that AI is here to stay and will continue to be refined. Companies that evaluate their opportunities carefully and prioritize use cases that prove to have tangible benefits will reap competitive rewards. ■

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