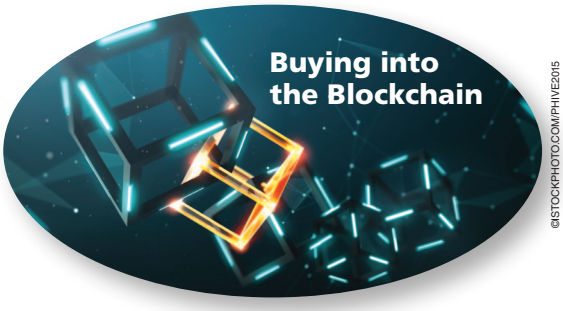

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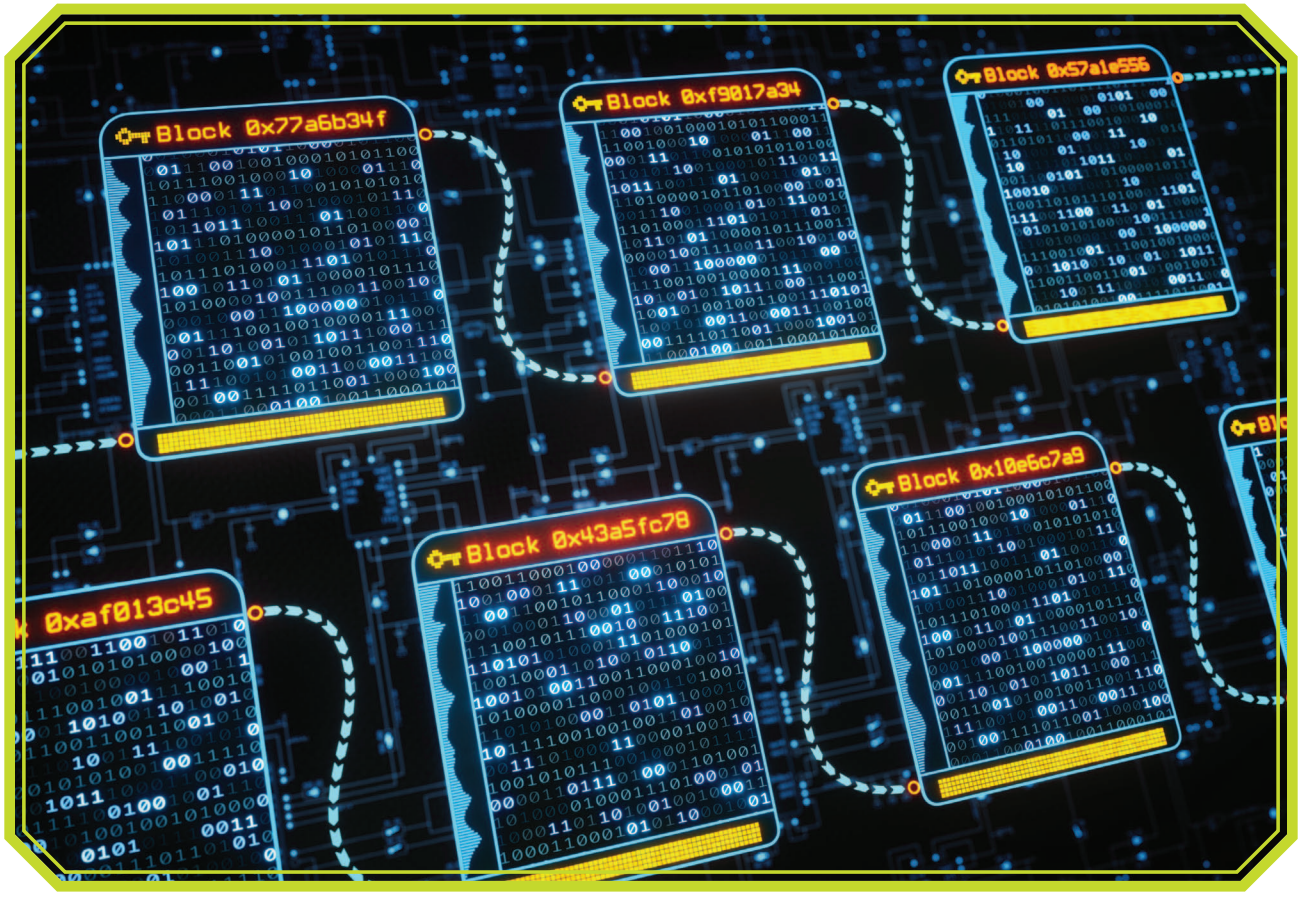
Blockchain Technologies

Blockchain use cases for consumer electronics.



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By Jong-Hyouk Lee

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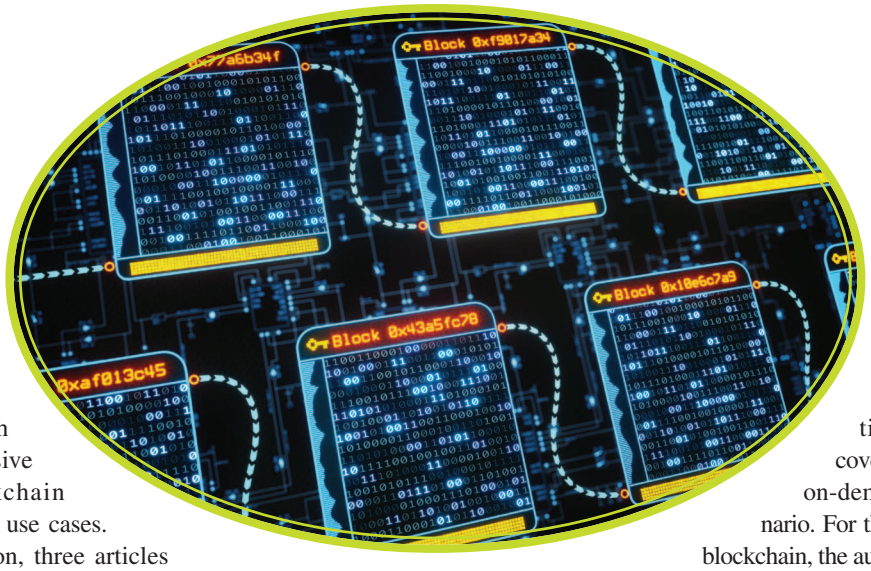
BITCOIN, THE FIRST CRYPTOCURRENCY, HAS THE ABILITY TO TRANSmit and verify digital assets on the Internet without specific management entities. There are currently more than 1,500 cryptocurrencies with a market capitalization of more than US$480 billion. Bitcoin and other cryptocurrencies were built on blockchain technologies to prevent forgery and falsification while distributing transaction data among participants. Although blockchain has been used mostly for developing cryptocurrencies, it is a new functional technology for both financial and

In this special section, three articles are included that present detailed blockchain use cases for CE and consider technologies, including blockchain-based distributed architecture for smart cities and blockchain-based health-care and car insurance systems.



consumer electronics (CE) sectors.

Many CE blockchain start-ups launch without comprehensive analysis on blockchain technologies or their use cases. In this special section, three articles are included that present detailed blockchain use cases for CE and consider technologies, including blockchain-based distributed architecture for smart cities and blockchain-based health-care and car insurance systems.

The first article, "DistArch-SCNet," introduces a new architecture that utilizes blockchains to enable a distributed architecture model for scalable smart cities. The authors introduce a hybrid communication modulation scheme for multiaccess bidirectional Li-Fi communications for smart cities.

In "Toward Blockchain for Health-Care Systems" the authors present how blockchain technologies are applied to the next generation of health-care systems. This article claims that distributed health-care data computations, while providing security and privacy, are key success factors that can be achieved with blockchain technologies.

A new use case of blockchains for car insurance is detailed in "Blockchains Can Work for Car Insurance." The authors show how a blockchain and sensors installed on a vehicle could be combined to semiautomatically activate or deactivate car insurance coverage in an envisaged on-demand insurance scenario. For the automations in the blockchain, the authors propose a smart contract and explain the implementation of the prototype, which includes a mobile application and a portable electronic device installed in a vehicle.

I hope that this special section will offer an insightful overview of the ongoing activities in the fields of blockchain technologies for CE. I would like to express my gratitude to all of the authors who made their work available and the reviewers for their constructive analyses. I would like to extend my sincere appreciation to Prof. Saraju Mohanty, editor-in-chief of *IEEE Consumer Electronics Magazine*, for providing the opportunity to organize this special section.

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