From the Editor's Desk

Smart Consumer Healthcare Technologies

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I WELCOME THE readers to the fourth issue of the year 2023, the July/August issue of the *IEEE Consumer Electronics Magazine* (*MCE*).

Consumer healthcare technologies have experienced a rapid evolution in recent years, largely driven by the proliferation of mobile devices and the Internet. The development of smart consumer healthcare technologies (SCHT) has transformed the way people approach health and wellness, empowering individuals to take a more proactive role in managing their health. SCHT refers to any technology that enables consumers to track, monitor, and manage their health and wellness independently. One of the main benefits of SCHT is its ability to democratize healthcare by making it more accessible and affordable. Consumers can now monitor their health at home, reducing the need for expensive doctor visits and hospital stays. SCHT can also improve the accuracy of health data by enabling consumers to collect and track health information over time, which can be shared with healthcare professionals. This can help healthcare providers to make better-informed decisions about treatment options. Another significant benefit of SCHT is its ability to support chronic disease management. Consumers with chronic conditions, such as diabetes or heart disease, can use SCHT to monitor their symptoms and track medication schedules, leading to better adherence to treatment plans. SCHT has also been shown to improve medication adherence, which is a critical issue for many patients. SCHT can provide reminders for medication schedules and help consumers understand the potential side effects of their medications. SCHT has the potential to transform the healthcare industry by empowering consumers to take control of their health and wellness. However, it is important to address the challenges associated with SCHT, such as data privacy and the need for more research, to ensure that it can be used effectively and safely. With continued innovation and investment in SCHT, it has the potential to revolutionize healthcare and improve the lives of millions of people.

In this issue of *MCE*, it is my pleasure to provide practitioners and researchers with high-quality, state-of-the-art articles dedicated to smart consumer healthcare technologies.

COLUMN

Metaverse Age—Scheduling Strategies for Digital Resource Management: This column explores optimal strategies for digital resource management and multiobjective task scheduling in the metaverse era. To this end, it explores the correlation between the metaverse and the Internet of Things. The next-generation interaction between humans and the metaverse is outlooked.

Digital Object Identifier 10.1109/MCE.2023.3271080
Date of current version 9 June 2023.

FEATURE ARTICLES

AI Ethics in Smart Healthcare: This article reviews the landscape of ethical challenges of integrating artificial intelligence (AI) into smart healthcare products, including medical electronic devices. Differences between traditional ethics in the medical domain and emerging ethical challenges with AI-driven healthcare are presented. Open challenges and recommendations are outlined to enable the integration of ethical principles into the design, validation, clinical trials, deployment, monitoring, repair, and retirement of AI-based smart healthcare products.

NFTs in Healthcare—Vision, Opportunities, and Challenges: In this article, the authors envision using nonfungible tokens (NFTs) in healthcare. The main components, along with key features of NFTs and their benefits, are presented. Potential opportunities brought about by NFTs in different healthcare areas, such as supply chain management, patient-centric data management, digital twins, clinical trial management, and genomics, are discussed. Some challenges hindering the adoption of NFTs in healthcare, serving as future research directions, are examined.

Metaverse in Healthcare—Applications, Challenges, and Future Directions: This article discusses how the metaverse can be utilized in healthcare. The authors provide insightful discussions on the concept of the metaverse and its main enabling technologies. The potential applications of the metaverse in telemedicine and telehealth, medical education and training, medical marketing, healthcare supply chain, healthcare facilities, fitness, and wellness, are discussed. Key challenges hindering the widespread adoption of the metaverse in healthcare are presented.

iYogacare—Real-Time Yoga Recognition and Self-Correction for Smart Healthcare: In this work, a self-assistance-based yoga posture identification technique is developed, which helps users to perform yoga with the correction feature in real time. The work also presents yoga-hand mudra (hand gestures) identification. The YOGI dataset has been developed, including ten yoga postures with around 400–900 images of each pose and five mudras for identification of mudras postures. The most accurate model indicates 99.2% accuracy.

Healthcare With Wireless Communication and Smart Meters: Smart health is an essential domain within smart cities. Internet-assisted communication with medical practitioners is now widely used. This is important for elderly or disabled patients, who may not be able to travel but have inexpensive and simple Internet access they can take advantage of with video-call consultations. This article reviews the benefits and challenges of healthcare innovations, emphasizing Internet of Things and smart meters.

SPECIAL SECTION

This Special Section on Consumer Healthcare Technologies in Smart Cities presents the selected set of articles to cover the scope. I would like to thank the Guest Editors, Professors Bernard Fong, Haesik Kim, and Vyasa Sai, for all their sincere effort and hard work for this strong Special Section, which will be excellent reading for the readers of the *MCE* as well as the researchers around the globe.

LOOKING FORWARD

I hope that the current issue dedicated to SCHT becomes a good read for a broader set of the Consumer Technology community to advance their knowledge. *MCE* will continue the trend of covering more themes for enthusiastic and dedicated readers in future issues on the current and emerging topics with the active support from the editorial board members, reviewers, and authors worldwide.

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