

# Consumer Robots Are Here to Help

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■ **I WELCOME THE** readers to the first issue of year 2021, the January 2021 issue, of the *IEEE Consumer Electronics Magazine* (MCE).

## CONSUMER ROBOTS IN VARIOUS ROLES

This issue of MCE is dedicated to consumer robots. While I thought of this theme, the first thing that came to mind is the robots of series of movies of Star Wars. Probably, R2-D2 and C3-PO are the widely popular fictional robots/characters among all of the presented in Star Wars.

Simplistically, we can say that robot is a machine that can automatically sense, make decisions, and perform actions. In general, robots are of various categories including aerospace, consumer, disaster response, humanoid, and industrial. Specifically, the consumer robots are the robots for personal help and fun, for example, AI-powered robot assistants and a variety of robotic toys and even vacuum cleaners.

Consumer robots that have serious demand for growth in future include cleaning robots, smart speakers, and consumer drones. Consumer robots' market is estimated to be US\$ 17B in 2020 and expected to grow to US\$ 76B in 2026.

## FEATURE ARTICLES

*Mixed-Reality Robotic Games: Design Guidelines for Effective Entertainment With Consumer Robots:* This article presents guidelines for

enhancing design of consumer robots using consumer-grade augmented reality.

*VISU: A 3D Printed Functional Robot for Crowd Surveillance:* This article presents a three-dimensional-printed robot whose effectiveness has been demonstrated for crowd surveillance.

*Deep Super-Resolution Imaging Technology: Toward Optical Super-Vision:* This article discusses a deep-neural-network-based imaging sharpening mechanism to reduce optical blur in high-quality images.

*Precision of Wearable GPS in Marathon Races:* This article introduces a method for analyzing the precision of the GPS models that are deployed in the marathon races, which can be used by manufacturers to get field information about the real-life behavior of the devices.

*Piezoelectric Based Insole Force Sensing for Gait Analysis in the Internet of Health Things:* This article presents an Internet-of-Medical-Things-enabled accurate and real-time gait monitoring solution that relies on smart integration of piezoelectric films.

*Ethernet TCP/IP-Based Audio Interface for DSP System Verification:* This article presents an Ethernet TCP/IP-based cost-effective audio interface framework that leverages on the standard hardware.

## COLUMNS

*Bits Versus Electrons—After TV: The Age of "Content":* This article presents vision of content delivery in a posttelevision era.

*The Art of Storage—Working from Home With External Storage:* This article discusses the trend in the usage of storage due to work from home.

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*Future Directions—Impact of COVID-19 on the Consumer Electronics Market:* This article discusses the impact that COVID-19 can have on the worldwide consumer electronics market.

*Standards—The Standard for Biometric Multimodal Fusion IEEE P2859TM Has Been Initiated:* This article discusses activities for biometric multimodal fusion standardization by IEEE.

*Market Analysis—Market Based Values: Learning From the Game:* This article discusses consumer electronics market trends from game design perspectives.

*Professional Development—Interview With the Entrepreneur: Anna Iarotska:* This article presents an interview with Anna Iarotska who is the CEO of Robo Wunderkind.

## SOCIOECONOMIC IMPACTS

*Smart Healthcare for Diabetes During COVID-19:* This article discusses different options for smart healthcare for people with diabetes during COVID-19.

## SPECIAL SECTION

This special section on *Novel Cybersecurity Paradigms for Consumer Technology* presents a selected set of articles to cover the scope. I

would like to thank the guest editors Fernando Pescador and Saraju P. Mohanty for all their hard work for this strong special section, which will be an excellent reading for the community around the globe.

## LOOKING FORWARD

I hope that the current issue dedicated to consumer robots becomes a good reading for a wider set of consumer technology community to advance their knowledge. *IEEE Consumer Electronics Magazine*, which is sponsored by the IEEE Consumer Technology Society, will continue the trend of covering more themes for its enthusiastic readers in future issues on the latest hot research topics with the active support of the editorial board members, reviewers, and authors, around the globe.

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