Notes from the editor – Deep Learning can be Crucial for Smart Consumer Electronics

By Saraju P. Mohanty

I introduce the current issue with announcement of few good news. IEEE Consumer Electronics Magazine is now indexed in DBLP. I think this will enhance visibility of CE magazine. In effect it may attract wider variety of authors from Computer Science and Computer Engineering kind of areas to Consumer Electronics. Recently 3 members of CE society conferred with IEEE Fellow. Following are the 3 members and contributions to the discipline:

- Petronel Bigioi for leadership in advancing digital imaging technology for handheld consumer devices.
- Michael Isnardi for contributions to compliance testing and vision-based video compression technologies.
- Shaomin Peng for contributions to scalable video decoding methods in MPEG2 standard.

Please join me in congratulating them for their distinct honors.

1. Society News – General

2017 IEEE Medal of Honor awarded to CE Society Member

CE society congratulates Dr. Kornelis A. Schouhamer Immink for receiving IEEE the Medal of Honor for pioneering contributions to video, audio, and data recording technology, including compact disc, DVD, and Blu-ray.

Cyber Physical System and Consumer Electronics – The Way Forward – IEEE CESoc Malaysia

The IEEE Consumer Electronics Malaysia Chapter organized a one-day national workshop called "Cyber Physical System Day (CPS Day)" on 18th April 2016 to have significant outreach for young innovators.

Flying Animals and The Art of Presentation at ICCE-Berlin 2016

A very interesting IEEE young professionals event was organized at the ICCE-Berlin 2016 in which the selected speakers presented a 10-minutes version of a conference paper and got feedbacks from judges.

2. Society News – Conferences

Internet of Things Activities in 2016

The Future Directions team on the Internet of Things of the CE society organizing multiples workshops in different cities of India during August 2016. Students located in various cities such as Thiruvananthapuram, Mumbai, Bangalore, and Kolkata got exposure to advances in IoT.

6th IEEE International Conference on Consumer Electronics-Berlin

The 6th event of ICCE-Berlin took place during September 2016 at Berlin, Germany. The technical program consisted of both oral and poster presentations as well as several high-quality keynote presentations.

The 2016 IEEE Fifth Global Conference on Consumer Electronics (GCCE 2016)

The 2016 event of the IEEE Global Conference on Consumer Electronics (GCCE) meeting took place in Kyoto, Japan. The technical program consisted of oral presentations, poster presentations, and demo.

Global Humanitarian Technology Conference 2016 (GHTC 2016)

The 6th event of Global Humanitarian Technology Conference (GHTC) took place in Seattle USA during October 2106. GHTC 2016 covered a wide variety of science and application areas which was well attended by 100s of delegates.

3. Society News – Future Directions

Are your Company's Consumer Electronics Exempt from FCC Marketing Regulations?

Many consumer electronics products are subjected to federal radiofrequency (RF) equipment rules. Federal Communications Commission (FCC) many such rules. This article discusses various aspects of FCC regulations.

Explosive Wireless Consumer Demand for Network Bandwidth - 5G and Beyond

This article presents a brief overview of evolution of mobile wireless systems from 1G to 5G with a target on consumer applications such as IoT and IoV which are facilitated by the 5G technology.

Surprising Prevalence of EEG Brain Computer Interface (BCI) to Internet of Things (IoT)

IEEE Brain Initiative held its first workshop in 2015. This IEEE initiative is moving ahead other activities such as EEG BCI Hackathon. The IEEE Hackathon is interested on the non-invasive placement of brain sensors for EEG acquisition. This article discusses three hackathons in the Fall of 2016.

Interoperable Nanoscale Communication

Nanoscale communication refers to the machine communication with nano/micro-scale biological entities such as subcellular components. This reprint discusses such communications in the framework of IEEE 1906.1-2015 standards.

4. Articles – General

Deep Learning for Improved Consumer Devices & Services

"Deep Learning" refers to the advanced training of convolutional neural networks (CNN). This article current-state of deep learning in addition to understanding of consumer electronics devices that are built using this technology.

Create Your Own Internet of Things

This is an interesting article which can help beginners of IoT. This article examines various hardware and software platforms targeted for IoT which can be used by a beginner, hobbyist, student, or a researcher.

Safety Assessment and Design of Dependable Cybercars

Cybercars are automated vehicles which can operate on road with minimal human intervention. This article presents discussions on safety assessment and design of dependable cybercars.

Pay-Cloak: A Biometric Back Cover for Smartphone with Tokenization Principle for Cashless Payment

This article presents a module called "Pay-Cloak" based on a tokenized security technique which could be used as back cover of NFC enabled smartphone. This is of similar flavor as "Swing-Pay" of January 2017 issue of CE magazine. While "Swing-pay" is a separate module that can handle all payment and identity needs, "Pay-Cloak" need to be attached with existing NFC enabled smartphones to process the transactions and identity virtualization.

5. Regular Columns

Bits Vs. Electrons -- An Alien "Drove" my car

This column presents driving experience of what is commercialized as self-driven cars.

Storage -- How Big Are Your Dreams?

This column highlights the challenges of the digital storage and bandwidth requirements to store, process, and distribute digital video when display resolutions move to 4K and 8K.

Hardware Matters -- Anti-Piracy aware IP Chipset Design for CE Devices: Robust Watermarking Approach

In this column a detailed discussion of Intellectual Property (IP) chipsets presented which are important components of consumer electronics (CE) products such as set-top boxes, digital TVs, and audio-video receivers.

CTA Insights -- The Path to Driverless Cars

This column presents a discussion on possible trend of driverless car development.

Standards Corner -- CE Standards of Interest Wearables and Wireless TV

This column presents the development of new protocols and standards which are under development: (1) CTA 2052.1: Definitions and Characteristics for Wearable Sleep Monitors Performance Criteria, (2) CTA 2056: Physical Activity Monitoring for Fitness Wearables Step Counting, and (3) ATSC 3.0 Wireless TV Everywhere.

IP Corner -- The EU Trade-secrets Directive: To Do's for Companies?

This column discusses impact of a new trade secrets directive of European Union alongwith some suggestions for companies.

6. Socioeconomic Impact

Natural interaction: Issues on Design the mapping of interaction space in freehand pointing

This article discusses several issues of design the mapping of interaction space in freehand pointing including low precision and fatigue.

Makers and Ham: Re-Purposing Consumer Electronics for Amateur Radio

The radio amateurs (hams) experiment many forms of consumer electronics products and long distance telecommunications equipment to innovate communications among each other. This article discusses a selected amateur radio platforms.

Exploding Galaxies: How to Do Recalls Right

This article discusses some case studies of consumer electronics product recalls from the market when there are non-fixable issues with the released product.

Is Apple Losing Its Shine?

This article discusses issues offshore cost-effective production of CE device.

Apple Versus the Feds: How a Smartphone Stymied the FBI

This article discusses if security of CE products are susceptible to federal or other party (beyond consumer and manufacturer) needs.

7. Product & Book Reviews

Book Review EMC Made Simple Printed Circuit Board and System Design

The book review is for the title "EMC Made Simple®-Printed Circuit Board and System Design" which consists of six different chapter and written using visual concepts to simplify both theory and applications.

8. Looking forward to next issue

Finally, I sincerely hope that the readers will find this educating. I sincerely appreciate help of to all members of the editorial board and reviewers for their help. I congratulate all the contributors of CE magazine who continuously contribute interesting articles that helps to enrich the thoughts of the readers. I would like to thank you all for the opportunity to contribute to CE magazine and serve the professional society.