

Information Security and IP Protection are becoming Increasing Critical in the Current Global Context

By Saraju P. Mohanty

I start with multiple big news for the CE magazine. First, the CE magazine is indexed in Clarivate Analytics (formerly IP Science of Thomson Reuters). This is a big achievement for the CE magazine which can attract further high quality contents. I am glad to announce that IEEE Consumer Electronics Magazine was a winner in the Regional 2016 STC Technical Communication Awards. STC Technical Communication Awards competition was hosted by the New York Metro, Philadelphia Metro, Atlanta and Rochester Chapters of the Society for Technical Communication (STC). The STC Technical Communication Awards continue to be the most coveted award in technical communications today. It may be noted that the IEEE CEM won an Apex Grand Award for excellence in writing in 2013. Overall, CEM is emerging as an excellent and globally visible periodical for IEEE through CE society.

During ICCE 2017 at Las Vegas, various awards were presented. I wish my hearty congratulations to all the awardees.

- 1) Outstanding Service Award of CE Society: Peter Corcoran received for Serving as the First Editor-in-Chief of the IEEE Consumer Electronics Magazine.
- 2) Chester Sall Memorial Award: The CE Society presents the Chester W. Sall Memorial Awards to recognize the best papers published in this magazine's sister periodical, IEEE Transactions on Consumer Electronics. Following are the winners:
 - (a) First Place Tie: "PVR System Design of Advanced Video Navigation Reinforced with Audible Sound" by Onno Eerenberg, Ronald M. Aarts and Peter H.N. de, IEEE Trans on Consumer Electronics, Vol 60, No. 4, Nov. 2014, pp. 681-689.
 - (b) First Place Tie: "Robust Obstacle Detection Method for Robotic Vacuum Cleaners" by Mun-Cheon Kang, Kwang-Shik Kim, Dong-Ki Noh, Jong-Woo Han, and Sung-Jea Ko, IEEE Trans on Consumer Electronics, Vol 60, No. 4, Nov 2014, pp. 587-595.
 - (c) Third Place: "Obstacle Avoidance Routing Scheme through Optimal Sink Movement for Home Monitoring and Mobile Robotic Consumer Devices" by Prasenjit Chanak, Indrajit Banerjee, Jin Wang, and R. Simon Sherratt, IEEE Trans on Consumer Electronics, Vol 60, No. 4, Nov 2014, pp. 596-604.
- 3) Ibuka Award "For pioneering contributions to high-speed wireless LAN technology" was conferred to the John O'Sullivan, Taggle Systems, Everleigh, Australia, David Skellern, CMCRC Ltd, Sydney, Australia, and Terence Percival, Broadband and the Digital Economy, NICTA, Northbridge, Australia. Ibuka which is conferred by IEEE for outstanding contributions to consumer electronics technology has been named in honor the co-founder and honorary chairman of Sony Corporation, Masaru Ibuka.

1. CHOICE OF CONFERENCES

In January issue, I expressed my opinion on various forms of publications such as periodicals and conference proceedings. In this issue I discussed IEEE (financially) sponsored conference versus IEEE (technically-co-sponsored) conferences in the interest of researchers. It is important for the author authors who are interested to publish and present their results in conference to be aware of this. A conference can be financially sponsored, technically (co)sponsored or not sponsored by any professional society (like IEEE). IEEE financially sponsored conference have different levels of sponsorship such as 100% from IEEE, 50% from IEEE, and 25% from IEEE. Only a IEEE financially sponsored conference is allowed to use "IEEE" term in its conference title. IEEE conferences are quality controlled in various forms such as budget including income and expenditure and peer-reviewing of the papers. This ensures stability and sustainability to the conference. The technical (co)sponsored conference have 0% finance sponsorship from the IEEE. The technical (co)sponsoring only ensures that many IEEE members are attending the conference. IEEE may not fully ensure the budget control as well as the stringent peer-review process as it is for a IEEE financially sponsored. The authors need to have the understanding of these differences. It may have that in many time IEEE technical (co)sponsoring conference may have reduced registration fee as compared to a IEEE financially sponsored conferences, but if quality is one of objectives then IEEE conference is the way to go. The conferences which as not either financially or technically (co)sponsored by IEEE may not have any quality control at all. So, overall I would recommend researchers to disseminate their research findings in IEEE financially sponsored conferences for quality as well as credibility of their research and papers.

2. NEWS – GENERAL

IEEE Approves Launch of IEEE Austin Area MEMS & Sensors Chapter: IEEE approved IEEE Central Texas MEMS & Sensors Chapter of IEEE Sensors Council in June 2016 for fostering innovation in this area.

IEEE Consumer Electronics Society Malaysia Chapter - Visit by Yamaguchi University Delegation: Malaysia Chapter of IEEE CESoc by the delegates from Yamaguchi University, Japan for enhancing collaborations.

“Flying Animals and The Art of Presentation” at ICCE 2017: Young professional event through flying toy animals introduced art of impact presentations to upcoming researchers.

3. NEWS – CONFERENCES

ICCE 2017: The 35th version of flagship conference of CE society ICCE 2017 took place in Las Vegas, USA with a theme of “Virtual and Augmented Lifestyle”.

ICCE-China 2016: The ICCE-China 2016 was held at the Guangzhou, China between December 19-21, 2016 which had focus of signal processing and consumer healthcare.

ICCE-Berlin 2017: The ICCE-Berlin 2017 will be held during September, 3-6 2017 at the IFA ground as a co-located event.

4. FUTURE DIRECTIONS

Convergence Through the Cloud-to-Thing Consortium: This reports the 3rd Special Session of IEEE Technical Activities Future Directions Committee at the ICCE 2017.

Magnetic Pixels: a world beyond touch screens: This article introduces the new concept of the magnetic pixels as contrary to the widely used touch capacitance screens.

How the Blockchain Revolution Will Reshape the Consumer Electronics Industry: This article discusses the impact of Blockchains which is the basis of the cryptocurrencies such as Bitcoin.

5. ARTICLES – GENERAL

New Technologies for Human Robot Interaction and Neuroprosthetics: This article discusses a selected neuroprosthetics and human-robot interaction applications.

Tackling The New Health Care Paradigm Through Service Robotics - The RADIO Approach: This article introduces a specific service robotics approach combined with home automation for assisted living.

Energy Efficient Periodic Threshold Sensitive Sensor Network Protocol for Precision Agriculture: This article presents a hybrid routing protocol for wireless sensor networks which can be used for precision agriculture.

5G Mobile Technology: What The Customers’ Expect: This article presents a thorough study of various expectations of next generation wireless mobile network (5G).

Reservoir Computing in Embedded Systems: This article presents different reservoir computing algorithms which are considered as natural choices for spatio-temporal learning systems in embedded platforms.

IFCIoT: Integrated Fog Cloud IoT Architectural Paradigm for Future Internet of Things: This article presents a future Internet of things (IoT) paradigm called integrated fog cloud IoT (IFCIoT).

Everything you Wanted to Know About Watermarking: From Paper Marks to Hardware Protection: This is one of the articles for the cover theme of this issue. This article presents a broad discussions of various aspects of watermarking technologies on applications ranging from the embedding of marks in the multimedia information to hardware

intellectual property (IP) protection. In general, security is a broad theme that covers many aspects including information security, privacy, trustworthiness, and intellectual property protection. The information security covers the security of data, information, and multimedia. The system security may refer to the security of the system that handles the data or information. For example, how trustworthy is the system and how much resilient is the system against side channel attacks. Malicious design modifications and hardware Trojans can compromise security or trustworthiness of the system. Side channel attacks rely on analyzing power and timing traces of the security hardware than breaking the encryption algorithm involved. IP protection can be applicable for copyright protection of information (movie, multimedia) or IP protection of the hardware design itself in this global supply chain in the social networking era of Internet.

Power Based Side-channel Analysis of Sensitive Consumer Electronics Hardware for Instruction Level Disassembly: This article is very well tied to the cover theme of current issue. This article discusses a variety of side channel attacks on CE digital hardware which relies on physical exploitations rather than breaking the encryption algorithm.

6. REGULAR COLUMNS

Bits Vs. Electrons -- 5G et al vs. The Internet: This article presents various perspectives of next generation cellular network technology 5G with respect to growth of Internet.

Storage -- Supersize My Pi: This article discusses versatile usage of the single board computer Raspberry Pi.

Hardware Matters -- Hardware Vulnerabilities and its Effect on CE Devices: Design-for-Security against Trojan: This article very well tied with the cover page theme. This article presents a selected set of hardware vulnerabilities as well as a design-for-security flow for digitally triggered hardware Trojan.

Privacy & Security Perspectives -- Security and Privacy Challenges in the Internet of Things: This is another article inclined towards the cover theme. This article discusses a selected aspects of “Security and Privacy Challenges in the Internet of Things” including security in mobile edge computing, security in connected cars, and security as a service.

Product Safety Perspectives -- Product Safety of the Internet of Things (IoT): This article discusses the safety aspects of IoT products and provide guidance in avoiding the FDA for products that track human biometrics.

CTA Insights -- Working with the Government to Introduce New Product Categories: This article discusses the experiences working with the Federal agencies as well as working together to align regulations with industry standards for new products like drones and personal health.

Market Analysis Corner -- The Crisco Effect: This article suggests the importance of out-of-box thinking.

7. SOCIOECONOMIC IMPACT

Was the Jury Wrong When They Found Toyota’s Embedded Software Responsible for a Fatal Accident: This article discusses product reliability aspects with respect to its embedded software component.

Autonomous Vehicle Ethics: Stock or Custom: This article suggests as the drivers and driving are automated, ethics needs to integrated into the controls of such autonomous vehicles.

Perceived Reasons to Accept or Reject RFID Implants for Employee ID in the Workplace: This article discusses various aspects of acceptance and non-acceptance of implantable employee identification (ID) in the workplace.

Novel Applications of NFC attempting to Enrich Our Connectedness: This article discusses the activities to advance Near Field Communication (NFC) technology for easy usage.

8. LOOKING FORWARD

It is a great honor to carry forward CE magazine in greater heights. I would like to thank you all for the opportunity to contribute to CEM and serve the professional society. I appreciate time, support, and contributions, of all members

of the editorial board and reviewers. I will be chairing ICCE 2018, the flagship conference of CE Society, I would invite all researchers to participate in any capacity such as authors, reviewers, etc. The theme of ICCE 2018 which is 36th version of the ICCE is “Cybersecurity”.