Computer Highlights Society Magazines

The IEEE Computer Society’s lineup of 13 peer-reviewed technical magazines covers cutting-edge topics in computing, including scientific applications, Internet computing, machine intelligence, pervasive computing, security and privacy, digital graphics, cloud computing, and computer history. Here, we highlight recent issues of other Computer Society magazines.

**Software**

The software architecture pendulum is swinging from traditional to agile and continuous practices. According to “What’s the Architect’s Role in an Agile, Cloud-Centric World?” from IEEE Software’s September/October 2016 issue, architects who want to be successful in this new world should emphasize products over projects, drive architectural decisions, understand code, and communicate and collaborate effectively with delivery teams.

**Internet Computing**

Modernizing today’s critical infrastructures and control systems yields better operational efficiency, saves energy, and improves reliability. However, foundational security requirements must be addressed to guarantee that this modernization doesn’t leave systems vulnerable to attack. IEEE Internet Computing’s September/October 2016 special issue explores new mechanisms for guaranteeing operational safety and security in complex cyber-physical systems.

**Computing**

The electrocardiogram (ECG) is cardiovascular research’s most commonly collected type of data because it’s easily measured and because ECG waveform changes reflect underlying aspects of heart disease. Accessed via a browser, WaveformECG is an open source platform that promises to improve ECG use. This approach is discussed in “WaveformECG: A Platform for Visualizing, Annotating, and Analyzing ECG Data,” from CiSE’s September/October 2016 issue.

**IEEE S&P**

IEEE S&P’s September/October 2016 special issue features three articles and a roundtable discussion that examine the relationship between security and usability. The authors seek to identify the perceptions, processes, and practices that underlie the challenges involved and to identify what must change to advance the field. The topics addressed include secure and usable enterprise authentication, barriers to usable security, debunking security–usability tradeoff myths, and the need for usable security APIs.

**IEEE Cloud Computing**

Cloud computing is becoming a promising way to strengthen collaboration and cooperation capabilities in manufacturing. However, the full application of cloud manufacturing faces several hurdles, with security one of the most challenging. “Cloud Manufacturing: Security, Privacy, and Forensic Concerns,” from IEEE Cloud Computing’s July/August 2016 issue, surveys cloud manufacturing’s key cybersecurity issues and the primary approaches to handling them.

**IEEE Computer Graphics and Applications**

For every major sport, analysts extract large amounts of data that can be leveraged by media, fans, athletes, and organizations. Helping with these efforts are leading technology vendors, who have recognized sports analytics’ value. The
ubiquity, diversity, and relative accessibility of sports data makes it particularly attractive to visualization researchers. Motivated by the significant growth, popularity, and potential of sports data visualization, CG&A’s September/October 2016 special issue gathers state-of-the-art research on this emerging topic.

**Intelligent Systems**

Using agent technologies with cybersecurity applications has generated numerous intelligent approaches that mitigate online cyberthreats’ effects. *IEEE Intelligent Systems’* September/October 2016 special issue on these intelligent cybersecurity agents covers topics such as revising and verifying normative specifications for privacy, using behavioral similarity for botnet command-and-control discovery, and creating network defense with attack graph games.

**IEEE MultiMedia**

Today, data-driven intelligent transportation systems must address data-quality challenges. In “Fusing Incomplete Multisensor Heterogeneous Data to Estimate Urban Traffic,” from *IEEE MultiMedia’s* July–September 2016 issue, the authors propose a way to estimate traffic state accurately even without all the information normally required. Experiments demonstrate that their approach can accurately estimate traffic states in real time.

**Annals of the History of Computing**

In June 1992, the Internet Activities Board tried to push the Internet Engineering Task Force (IETF) to solve the Internet’s address-depletion problem. This move provoked a management crisis that forced a restructuring of the Internet standards governance process. “The Restructuring of Internet Standards Governance: 1987–1992,” from *IEEE Annals’* July–September 2016 issue, revisits the situation to show that the IETF, at least initially, sought to avoid the crisis.

Approaches such as energy harvesting and power management can extend the battery life of mobile devices, wireless sensors, and similar systems. The articles in *IEEE Pervasive Computing’s* October–December 2016 special issue cover a range of current research in these areas.

Although we generally describe cybersecurity and privacy as going hand in hand, experts are increasingly seeing them as being in opposition, saying that we can have either cybersecurity or privacy. This topic is discussed in *IT Pro’s* September/October 2016 special issue.

“Proprietary versus Open Instruction Sets,” from *IEEE Micro’s* July/August 2016 issue, presents position statements and a question-and-answer session on this debate by panelists at the Fourth Workshop on Computer Architecture Research Directions (CARD 15).