Computer Highlights Society Magazines

The IEEE Computer Society’s 13 peer-reviewed technical magazines cover cutting-edge computing topics 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

Developers of systems of systems (SoSs) face numerous challenges. The authors of “Monitoring Requirements in Systems of Systems,” from IEEE Software’s September/October 2016 issue, discuss their ReMinds tool, designed to meet these challenges by instrumenting SoS systems to extract events and data at runtime. ReMinds then defines requirements as constraints to check for expected behavior and properties.

Measuring spam’s cost for users and network operators and identifying who pays for it is difficult. In “Measuring, Characterizing, and Avoiding Spam Traffic Costs,” from IEEE Internet Computing’s July/August 2016 issue, the authors provide a way to quantify those costs. They show that stub networks incur high spam traffic costs. However, they also found that some networks actually profit from spam traffic and might not want to filter it. They then present an algorithm to identify networks that would benefit from cooperating to filter such traffic.

Security & Privacy

The gaming industry collects participants’ data to generate marketing-related revenue and improve the playing experience. However, the need to protect player privacy complicates this process. “Incorporating Privacy into Digital Game Platform Design: The What, Why, and How,” from IEEE S&P’s July/August 2016 issue, details an iterative approach that includes privacy-by-design principles in game development.

Cloud Computing

IEEE Cloud Computing’s July/August 2016 special issue on manufacturing and the cloud includes articles on the economics and strategy of manufacturing and the cloud; cloud manufacturing’s security, privacy, and forensic concerns; and a roadmap for using the Internet of Things and cloud computing in manufacturing.

“Designing for Insight: A Case Study from Tennis Player Analysis,” which appears in CG&A’s July/August 2016 issue, describes a combinatory design process that uses incremental addition to generate increasingly complex data.
arrangements and thus create new ways to see the information and discover new insights.

**Intelligent Systems**

“Design of a Multiagent System for Real-Time Traffic Control,” from IEEE Intelligent Systems’ July/August 2016 issue, examines the various steps involved in analyzing and designing such a system for use at isolated street intersections. In the authors’ model, the many agents designed for isolated intersections create, manage, and evolve their own traffic-signal plans.

**Multimedia**

The authors of “Multimedia Hashing and Networking,” from IEEE Multimedia’s July–September 2016 issue, summarize shallow-learning–based and deep-learning–based hashing. State-of-the-art hashing techniques are widely used in high-efficiency multimedia storage, indexing, and retrieval. The authors also introduce multimedia information networks as a way to incorporate both visual and textual information to make deep learning practical in multimedia applications.

**Annals**

“Two Early Interactive Computer Network Experiments,” from IEEE Annals’ July–September 2016 issue, looks at a couple of experiments that joined a System Development Corp. time-sharing computer with a system at the Stanford Research Institute in 1963 and with one at MIT Lincoln Laboratory in 1966 and 1967.

**Professional**

Rich visual information is becoming increasingly important in today’s web. In “Visual Information Retrieval: The State of the Art,” from IT Pro’s July/August 2016 issue, the author examines the process of searching for and retrieving images using a visual query, a process that is also called content-based image retrieval.

**micro**

“Ten Open Questions for Techno-Optimists,” from IEEE Micro’s July/August 2016 issue, discusses some of the open questions regarding productivity growth and economic gains resulting from innovative IT.