The IEEE Computer Society’s lineup of 12 peer-reviewed technical magazines cover cutting-edge topics in computing, including scientific applications, Internet computing, machine intelligence, pervasive computing, security and privacy, digital graphics, and computer history. Select articles from recent issues of Computer Society magazines are highlighted below.

Software

In “The 10-Minute Test Plan” in Software’s September/October issue, James A. Whittaker describes a method for writing test plans that he developed as an engineering director at Google. Whittaker wanted to reconcile the utility of test planning with the often voluminous test plans that are “written, reviewed, and left to rot in place as the hustle and bustle of software development progresses. …” To answer the question, he adopted “a very industry-oriented technique,” giving the group of people who reported to him a nebulous task with unrealistic time constraints. The first task: “Build a test plan for Google App Engine; you have 10 minutes.” Subsequent tasks changed the application target but kept the same time constraint. Out of this exercise, three requirement categories emerged that boiled test planning down to its essence, creating a process for documenting them in 10 minutes or less.

“Integrating User Customization and Authentication: The Identity Crisis” is the Building Security In department article in S&P’s September/October issue. Authors Željko Obrenović and Bart den Haak of Backbase describe four patterns for integrating advanced personalization mechanisms with existing security infrastructures. “Many people have come to expect user customization,” they write, “but creating good designs isn’t trivial.” The authors offer their patterns as relevant beyond personalization to “any situation that requires mapping user identities to application-specific data.”

Internet Computing

“Real-Time Communications in the Web: Issues, Achievements, and Ongoing Standardization Efforts” is the Standards department article in IC’s September/October issue. Authors Salvatore Loreto of Ericsson Research and Simon Pietro Romano of the University of Napoli Federico II look at Internet Engineering Task Force and Worldwide Web Consortium activities to enable a Web application running on any device to send and receive real-time media and data in a peer-to-peer fashion between browsers. The IETF’s RTCWeb working group is focused on the communication protocols for setting up and managing a reliable communication channel between any pair of next-generation browsers. The W3C’s WebRTC working group is defining an API that lets browsers and scripting languages interact with media devices and transmission functions.

Intelligent Systems

Taking cues from The Matrix and IBM’s Watson, the authors of “An Artificial Player for a Language Game” introduce Ottho—short for “On the tip of my thought”—in IS’s September/October issue. Ottho solves language games through a knowledge-infusion process that adopts natural-language processing techniques to build a knowledge base in its memory, which a reasoning mechanism exploits to play the game. Borrowing its approach from the adaptive-control-of-thought theory about human long-term memory, Ottho crawls the Web and extracts knowledge that it stores as cognitive units in an interconnected network.

Professional

“Deploying Mobile Data Services: An Australian Case Study” is one of five cover features in IT Pro’s September/October theme issue on mobile and wireless technologies. Researchers from the University of Southern Queensland present an analytical model to help decision makers successfully deploy mobile data services. They base their model on a review of current mobile-business models and a...
case study of six Australian organizations that implemented mobile data services.

**Micro**

In *Micro’s* September/October special issue on energy-aware Computing, guest editors Thomas F. Wenisch of the University of Michigan and Alper Buyuktosunoglu of IBM’s Thomas J. Watson Research Center introduce five articles that examine energy efficiency and its implications across scales—from sensors and embedded systems to data warehouses and from circuits through software. “The march of Moore’s law continues to provide more every more transistors,” they write, “but unfortunately Dennard scaling—the concomitant reduction of CMOS threshold and supply voltages—has come to an end. … In a world of Dennard scaling, energy efficiency is the new performance.”

**Computer Graphics**

In *Computer Graphics*’s November/December issue, the Spatial Interfaces department presents “Beaming: An Asymmetric Telepresence System,” describing a European Commission project funded under the FP7 Information and Communication Technologies Work Programme. Beaming—an abbreviated term for Being in Augmented Multimodal Naturally Networked Gatherings—focuses on recreating a real meeting space in 3D virtual reality to support collaborative work with remote participants who use mobile, self-calibrating, and dynamically reconfigurable VR display technologies.

**CiSE**

The theme of *CiSE*’s November/December issue is modern programming languages. “The proliferation of new languages and paradigms can at first appear confusing,” write guest editors Massimo Di Pierro of DePaul University and David Skinner of the Lawrence Berkeley National Laboratory, “but it shows a clear trend toward increasing the expressiveness and readability of languages while decoupling the coding of the algorithm from parallelization and concurrency optimizations.” They introduce articles on three languages—Clojure, Erlang, and Haskell—and compare performance results from the authors of each article on solving the same problem—namely, parallelizing a naïve solver for a 1D Poisson equation.

**MultiMedia**

Question-answering (QA) research addresses information-overload problems by leveraging advanced domain knowledge and analytic techniques to return precise answers to natural-language queries. So far, the research has focused mostly on text, but *MultiMedia’s* October-December issue features “Multimedia Question Answering,” a survey of preliminary work to extend text-based QA research to multimedia and of the challenges that remain.

**Pervasive Computing**

In *Pervasive Computing*’s October-December theme issue on healthcare, guest editors Maria Ebling of IBM’s Watson Research Center and Joseph Kannry of the Mount Sinai Medical Center introduce four articles that describe technological capabilities that pervasive computing offers future healthcare providers and recipients. These range from advanced cardiovascular monitoring systems to large-scale sensing in support of community health. Privacy concerns come front and center in the final theme article, “Aging, Privacy, and Home-Based Computing: Development of a Framework for Design.”

**Annals of the History of Computing**

In 1949, a team at the US Army’s Ballistic Research Laboratory in Aberdeen, Maryland, used the ENIAC to compute the decimal expansion of pi out to 2,035 places, more than double the previous record of 808 digits. The ENIAC wasn’t designed to perform this type of calculation; it could only store 200 decimal digits. In *Annals*’ July-September issue, Brian J. Shelburne of Wittenberg University reconstructs how the team did it in “The ENIAC’s 1949 Determination of π.” The calculation took 70 hours, and its 2,000-plus digit computation held the record until 1954, when the IBM-built Naval Ordnance Research Calculator took 13 minutes to compute 3,000-plus digits.

**Education Column: Online Only**

*Computer*’s Education column editor Ann Sobel interviews Jennifer Dalby, of Seattle University, who describes her experiences and expertise with open online learning sessions and discusses the potential effects of massive open online courses (MOOCs); [http://youtu.be/B2-NhlmkDMo](http://youtu.be/B2-NhlmkDMo).

“Is There a MOOC in Your Future?,” a plenary session at the 2012 IEEE Frontiers in Education Conference held in Seattle, examines current trends and future prospects in online education; [www.youtube.com/watch?v=EG1JbDovl-w](http://www.youtube.com/watch?v=EG1JbDovl-w).