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

**Software**

Cloud computing is a software system paradigm that divides applications into sets of composite services hosted on leased, highly distributed platforms. Building effective cloud-based software applications presents many software engineering challenges. The March/April 2012 issue of *Software* provides a set of practical contributions to the engineering of cloud computing applications and includes articles on software processes, architecture and design approaches, testing, scalability engineering, security engineering, and applications of highly parallel cloud-based systems.

**Intelligent Systems**

Urban rail transportation systems have been effectively relieving traffic congestion in many major metropolitan areas. Although technologies for such systems continue to progress, their respective safety precautions often lag behind. In “Urban Rail Emergency Response Using Pedestrian Dynamics,” in the January/February 2012 issue of *IS*, Hai-Rong Dong and her colleagues discuss an urban rail emergency response using a pedestrian dynamics system, which could ultimately lead to a database of emergency response strategies and schemes.

**Computer Graphics**

“Digital Media and the Beginning Designer” in the March/April 2012 issue of *CG&A* presents a case study of the pedagogy implemented by the New Jersey Institute of Technology’s College of Architecture + Design, providing examples of how teachers can harness students’ desire to create and still provide educational opportunities for undergraduates to learn about the use of digital media in design. Employing a carefully constructed sequence, students use computer applications for raster imaging, vector drawing, and 3D modeling and rendering, eventually building information modeling and time-based sequential representations.

**Computing**

The development of scientific software has similarities with processes that follow software engineering’s “agile manifesto”: responsiveness to change and collaboration are of utmost importance. But how well do current scientific software development processes match the practices found in agile development methods, and what are the effects of using agile practices in such processes? In “What Do We Know about Scientific Software Development’s Agile Practices?” in the March/April 2012 issue of *CiSE*, Magnus Thorstein Sletholt and his colleagues tackle this question for the scientific software computing community.

**Security & Privacy**

User education must focus on challenging and correcting the misconceptions that guide current behavior. To date, education on phishing has tried to persuade users to check URLs and several other indicators, with limited success. In “Security Education Against Phishing: A Modest Proposal for a Major Rethink” in the March/April 2012 issue of *S&P*, Iacovos Kirlappos and M. Angela Sasse of University College London evaluate a novel antiphishing tool in a realistic setting—participants had to buy tickets under time pressure and lost money if they bought from bad sites. Although none of the participants bought from sites the tool clearly identified as bad, 40 percent risked money with sites flagged...
as potentially risky, but offering bargains. When tempted by a good deal, participants didn’t focus on the warnings; rather, they looked for signs they thought confirmed a site’s trustworthiness.

A socially activated gaming experience can be built on a custom platform of interactive pervasive technologies. In “Chamber of Mirrors: A Socially Activated Game Exploits Pervasive Technology” in the April-June 2012 issue of Pervasive Computing, Mat Laibowitz, Vids Samanta, Syed Reza Ali, and Ronald Azuma of the Nokia Research Center review user tests and present techniques for overcoming the challenges of designing interactive applications for pervasive platforms.

“We’re used to identity being quite simple,” write Hugh Glaser of Seme4 and Harry Halpin of the World Wide Web Consortium in “The Linked Data Strategy for Global Identity” in the March/April 2012 issue of Internet Computing. “Yet on closer inspection and at Web scale, identity is quite tricky, as when you type your name into a search engine and see that it can refer to many other people in different contexts. It might even refer to you in a context that you didn’t intend!” Glaser and Halpin survey the issues and challenges of Tim Berners-Lee’s proposed solution to the identity problem—specifically, using HTTP URIs to identify “not just Web pages but everything—including real-world entities and intangible concepts.”

In Micro’s March/April 2012 theme issue, guest editors Allen Baum of Intel and Bevan Baas of the University of California, Davis, introduce five articles based on presentations at the 2011 IEEE/ACM Symposium on High-Performance Chips (Hot Chips). “Hot Chips has become a bellwether of computer architectural trends,” they write. “Hot Chips 23 was clearly the year of many-core and many-thread processors.” The articles included in the theme issue are from Oracle, Intel, AMD, IBM, and the Chinese Academy of Science’s Godson-T research project.

MultiMedia’s January-March 2012 theme issue on multimedia in forensics includes an article describing enhancements to a content-based image-retrieval system for tattoos. Tattoos are a “soft biometric” used in the US Federal Bureau of Investigation’s next-generation system for identifying criminals. “Image Retrieval in Forensics: Tattoo Image Database Application” describes an unsupervised approach to designing similarity measures that explicitly address low-quality tattoo image matching in the Tattoo-ID system. Experimental results on a 100,000-image database show a top-20 retrieval accuracy of 90.5 percent.

IT Pro’s March/April 2012 special theme issue on NASA contributions to IT includes a review of swarm computing in the development of multicomponent space systems with elements of AI and autonomous behavior. In “Swarm Technology at NASA: Building Resilient Systems,” researchers from Lero—the Irish Software Engineering Research Centre, the University of Ulster, and Lockheed Martin describe NASA’s swarm computing projects and its Autonomous Nano Technology Swarm (ANTS) concept mission to develop revolutionary architectures based on swarm technologies.

In addition to six feature articles documenting the emergence of microcircuitry in the 1950s and early 1960s, Annals of the History of Computing’s January/February 2012 issue includes a “Think Piece” that examines the history of computers in the broader context of how they have shaped the institutions in which they were embedded. “Stating the Field: Institutions and Outcomes in Computer History,” by Andrew Meade McGee of the University of Virginia, traces this theme within the US federal government, “the world’s largest purchaser of computers.” McGee concludes that at least from the 1950s onward, “we can legitimately argue that to see like a state is to see like a computer.”

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COMPUTING IN ASIA