As software becomes increasingly critical to modern society, so software testing must advance and innovate to ensure safety, reliability, and efficiency. The four feature articles bring us up to date on the important problems within the software testing community and what is being done to move the field forward.

**Software Testing**
Renée Bryce and Rick Kuhn
Ensuring software’s reliability and effectiveness—particularly as its role in society approaches ubiquitous, and the platforms on which it operates continue to evolve—is increasingly critical, ever more challenging, and replete with moving targets.

**An Extensible Framework for Online Testing of Choreographed Services**
Midhat Ali, Francesco De Angelis, Daniele Fanì, Antonia Bertolino, Guglielmo De Angelis, and Andrea Polini
Service choreographies present numerous engineering challenges, particularly with respect to testing activities, that traditional design-time approaches cannot properly address. A proposed online testing solution offers a powerful, extensible framework to effectively assess service compositions, leading to a more trustworthy and reliable service ecosystem.

**Penetration Testing for Web Services**
Nuno Antunes and Marco Vieira
Web services are often deployed with critical software security faults that open them to malicious attack. Penetration testing using commercially available automated tools can help avoid such faults, but new analysis of several popular testing tools reveals significant failings in their performance.

**Combinatorial Interaction Testing**
Cemal Yilmaz, Sandro Fouché, Myra B. Cohen, Adam Porter, Gulsen Demiroz, and Ugur Koc
Combinatorial interaction testing (CIT) is an effective failure detection method for many types of software systems. This review discusses the current approaches CIT uses in detecting parameter interactions, the difficulties of applying it in practice, recent advances, and opportunities for future research.

**Mobile Application Testing: A Tutorial**
Jerry Gao, Xiaoying Bai, Wei-Tek Tsai, and Tadahiro Uehara
To cope with frequent upgrades of mobile devices and technologies, engineers need a reusable and cost-effective environment for testing mobile applications and an elastic infrastructure to support large-scale test automation.

**Application Transparency and Manipulation**
Andreas Dähn and Clemens H. Cap
Although some network-related aspects of application behavior will always be invisible to users, making applications more transparent will increase their utility and trustworthiness.

**Enhanced IP: IPv4 with 64-Bit Addresses**
William J. Chimiak, Samuel T. Patton, and Stephen Janansky
Enhanced IP (EnIP) offers a solution to the problem of IPv4 address depletion without replacing IPv4, as IPv6 does, but by building on top of IPv4, maximizing backward compatibility.