CACM Reports: Hiding Data in Plain Sight in the Digital Age

March 2014 Issue Reports on Brain-Decoding Algorithms; How to Build a Bad Research Center; and Big-Data Applications in the Government Sector

The new black among black hats in hidden data is the evolution of an age-old technique called steganography that camouflages information in digital media and computer networks, according to researchers at the Warsaw Institute of Technology. They examine recent efforts to embed secret messages by rogue hackers, and track the distinctions between steganography and cryptography. Warning of new embedding opportunities that pose a large threat to the security of information systems, the authors urge the research community to discover better detection methods for information hiding that can be promptly and practically deployed in networking environments.

(Hint: the print edition’s cover art incorporates thermochromatic ink that hides a message.)

- Science writer Erica Klarreich reports on a first step toward enabling a computer to perceive one’s thoughts. The new brain-decoding algorithm may allow neurologically impaired people to manipulate computers and machinery with their thoughts.
- Sharing lessons from his personal experience, University of California, Berkeley’s David Patterson reflects on the eight commandments for building a bad research center. He then proposes alternative commandments to avoid bad research centers, and to create centers that have the added benefit of improving undergraduate education.
- The performance of an API contract matters, argue Robert Sproull and Jim Waldo, formerly of Sun Microsystems Laboratories, because serious violations lead to composition failure. They dissect the performance taxonomy of APIs and discuss how contract violations can be avoided for successful software systems.
- In the same way that businesses use big data to pursue profits, governments use it to promote the public good, contend researchers from South Korea and the University of Nebraska. They survey a range of advanced government systems as a guide for follower countries looking to initiate their own big-data applications.

Click on http://cacm.acm.org/magazines/2014/3 for Communications Table of Contents. Visit Communications for industry news, commentary, observations, and practical research. Communications, the flagship publication of ACM, is available online in digital format.

About ACM
ACM, the Association for Computing Machinery www.acm.org, is the world’s largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources and address the field’s challenges. ACM strengthens the computing profession’s collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

Contact: Virginia Gold 212-626-0505 vgold@acm.org

# # #