COMMUNICATIONS OF THE ACM

Departments

Editor's Letter Science Has Only Two Legs By Moshe Y. Vardi

Letters To The Editor More Than One Way to Annotate Metadata

BLOG@CACM

Expanding CS Education; Improving Software Development Ed H. Chi writes about the social Web's impact on CS education. Ruben Ortega discusses software and test-driven development.

12 CACM Online More Communications By David Roman

25 Calendar

107 Careers

Last Byte

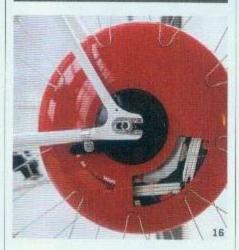
110 Puzzled

Solutions and Sources By Peter Winkler

112 Future Tense

Little Brother Is Watching In a world of technology and fear, the public gets to know what it wants to know... and more than it can possibly digest. By Greg Bear

News



13 Brains and Bytes Computational neuroscientists are learning that the brain is like a computer, except when it isn't. By David Lindley

16 Cycling Through Data Sensor-equipped bicycles are providing valuable data to cyclists, city planners, and computer scientists. By Neil Savage

18 Degrees, Distance, and Dollars The Internet is making higher education accessible to a whole new class of students-but not necessarily at a lower cost. By Marina Krakovsky

20 ACM China Nearing Launch ACM's expansion into China will support local professionals and increase Chinese involvement in ACM's international activities. By Tom Geller

21 Kyoto Prize and Other CS Awards László Lovász, Vinton G. Cerf. and other researchers are honored for their contributions to computer science. By Jack Rosenberger

23 The Business of Software Return at Risk Calculating the likely true cost of projects. By Phillip G. Armour

26 Law and Technology Principles of the Law of Software Contracts An overview of a new set of legal principles for software contracts developed by the American Law Institute. By Robert A. Hillman and Maureen A. O'Rourke

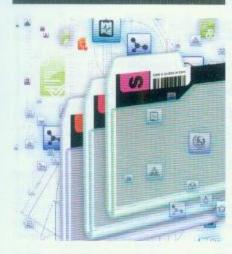
29 The Profession of IT Discussing Cyber Attack Cyber attack—the other side of cyber defense-deserves a more open discussion than it has been getting. By Peter J. Denning and Dorothy E. Denning

32 Viewpoint Objects Never? Well, Hardly Ever! Revisiting the Great Objects Debate. By Mordechai Ben-Ari

Point/Counterpoint

Future Internet Architecture: Clean-Slate Versus **Evolutionary Research** Should researchers focus on designing new network architectures or improving the current Internet? By Jennifer Rexford and Constantine Dovrolis

Practice



- 42 Computers in Patient Care:
 The Promise and the Challenge
 Information technology has
 the potential to radically transform
 health care. Why has progress
 been so slow?

 By Stephen V. Cantrill, M.D.
- 48 Injecting Errors for Fun and Profit
 Error-detection and correction
 features are only as good as
 our ability to test them.
 By Steve Chessin
- 55 Thinking Clearly About
 Performance, Part 1
 Improving the performance of
 complex software is difficult, but
 understanding some fundamental
 principles can make it easier.
 By Cary Millsap
- Articles' development led by ICMQUEUE queue.acm.org

Contributed Articles



- of Rapid Obsolescence in
 Computing Research
 Computing research ages more
 slowly than research in other
 scientific disciplines, supporting
 the call for parity in funding.
 By Dag I.K. Sjøberg
- The same component isolation that made it effective for large distributed telecom systems makes it effective for multicore CPUs and networked applications.

 By Joe Armstrong

About the Cover:



"With all of the computerization of so many aspects of our daily lives, medical informatics has had limited impact on day-to-day patient care," says Stephen V. Cantrill, M.D. in this month's cover story, Dr. Cantrill examines the many issues and challenges impeding faster progress in this field. Cover image by London-based award-winning graphic

artist Paul Price; http://www.paulprice.org.uk/

Review Articles

76 Performance Evaluation
and Model Checking Join Forces
A call for the perfect marriage
between classical performance
evaluation and state-of-the-art
verification techniques.
By Christel Baier,
Boudewijn R. Haverkort,
Holger Hermanns,
and Joost-Pieter Katoen

Research Highlights

- Programming with
 Differential Privacy
 By Johannes Gehrke
- 89 Privacy Integrated Queries: An Extensible Platform for Privacy-Preserving Data Analysis By Frank McSherry
- 78 Technical Perspective
 Constraint Satisfaction Problems
 and Computational Complexity
 By Mark Jerrum
- 99 Constraint Satisfaction Problems and Global Cardinality Constraints Andrei A. Bulatov and Dániel Marx