DEPARTMENT: EDITOR'S LETTER

Here Comes Everybody . . . to *Communications*

I am pleased to announce a new *Communications of the ACM* initiative with the ambitious goal of expanding the *Communications* community globally to include important voices and perspectives in the conversation about the present …

Andrew A. Chien

Page 5

DEPARTMENT: CERF'S UP

Unintended Consequences

The Internet as we know it today has driven the barrier to the generation and sharing of information to nearly zero. But there are consequences of the reduced threshold for access to the Internet.

Vinton G. Cerf

Page 7

DEPARTMENT: VARDI'S

INSIGHTS

A Declaration of the Dependence of Cyberspace

Just as you cannot separate the mind and the body, you cannot separate cyberspace and physical space. It is time to accept this dependence and act accordingly.

Moshe Y. Vardi

Page 9

DEPARTMENT: LETTERS

TO THE EDITOR

Keep the ACM Code of Ethics As It Is

The proposed changes to the ACM Code of Ethics and Professional Conduct as discussed in "ACM Code of Ethics: A Guide for Positive Action" (Digital Edition, Jan. 2018), are generally misguided and should be rejected by the ACM …

CACM Staff

Pages 10-11

DEPARTMENT: BLOG@CACM

The Costs and Pleasures of a Computer Science Teacher

Mark Guzdial considers the enormous opportunity costs of computer science teachers, while Bertrand Meyer ponders the pleasures of arguing with graduate students.

Mark Guzdial, Bertrand Meyer

Pages 12-13

COLUMN: NEWS

In Pursuit of Virtual Life

Scientists are simulating biological organisms and replicating evolution in the lab. How far can they expand the boundaries of virtual life?

Samuel Greengard

Pages 15-17

The Construction Industry in the 21st Century

Three-dimensional printing and other new technologies are revitalizing the business of building buildings.

Keith Kirkpatrick

Pages 18-20

The State of Fakery

How digital media could be authenticated, from computational, legal, and ethical points of view.

Esther Shein

Pages 21-23

COLUMN: PRIVACY AND SECURITY

Making Security Sustainable

Can there be an Internet of durable goods?

Ross Anderson

Pages 24-26

COLUMN: LEGALLY SPEAKING

Will the Supreme Court Nix Reviews of Bad Patents?

Considering the longer-term implications of a soon-to-be-decided U.S. Supreme Court case.

Pamela Samuelson

Pages 27-29

COLUMN: COMPUTING ETHICS

Ethics Omission Increases Gases Emission

A look in the rearview mirror at Volkswagon software engineering.

Simon Rogerson

Pages 30-32

COLUMN: THE PROFESSION OF IT

The Computing Profession

Taking stock of progress toward a computing profession since this column started in 2001.

Peter J. Denning

Pages 33-35

COLUMN: VIEWPOINT

Impediments with Policy Interventions to Foster Cybersecurity

A call for discussion of governmental investment and intervention in support of cybersecurity.

Fred B. Schneider

Pages 36-38

Responsible Research with Crowds: Pay Crowdworkers at Least Minimum Wage

High-level guidelines for the treatment of crowdworkers.

M. S. Silberman, B. Tomlinson, R. LaPlante, J. Ross, L. Irani, A. Zaldivar

Pages 39-41

Computational Social Science ≠ Computer Science + Social Data

The important intersection of computer science and social science.

Hanna Wallach

Pages 42-44

SECTION: PRACTICE

Bitcoin's Underlying Incentives

The unseen economic forces that govern the Bitcoin protocol.

Yonatan Sompolinsky, Aviv Zohar

Pages 46-53

Operational Excellence in April

Fools' Pranks

Being funny is serious work.

Thomas A. Limoncelli

Pages 54-57

Monitoring in a DevOps World

Perfect should never be the enemy of better.

Theo Schlossnagle

Pages 58-61

SECTION: CONTRIBUTED

ARTICLES

A Programmable Programming Language

As the software industry enters the era of language-oriented programming, it needs programmable programming languages.

Matthias Felleisen, Robert Bruce Findler, Matthew Flatt, Shriram Krishnamurthi, Eli Barzilay, Jay McCarthy, Sam Tobin-Hochstadt

Pages 62-71

The Wisdom of Older Technology

(Non)Users

Older adults consistently reject digital technology even when designed to be accessible and trustworthy.

Bran Knowles, Vicki L. Hanson

Pages 72-77

Evolution Toward Soft(er) Products

As software becomes a larger part of all products, traditional (hardware) manufacturers are becoming, in essence, software companies.

Tony Gorschek

Pages 78-84

SECTION: REVIEW

ARTICLES

How Can We Trust a Robot?

If intelligent robots take on a larger role in our society, what basis will humans have for trusting them?

Benjamin Kuipers

Pages 86-95

SECTION: RESEARCH

HIGHLIGHTS

Technical Perspective: A Graph-Theoretic Framework Traces Task Planning

In "Time-Inconsistent Planning: A Computational Problem in Behavioral Economics," Kleinberg and Oren describe a graph-theoretic framework for task planning with quasi-hyperbolic discounting.

Nicole Immorlica
Page 98

Time-Inconsistent Planning: A Computational Problem in Behavioral Economics

We propose a graph-theoretic model of tasks and goals, in which dependencies among actions are represented by a directed graph, and a time-inconsistent agent constructs a path through this graph.

Jon Kleinberg, Sigal Oren
Pages 99-107

Technical Perspective: On Heartbleed: A Hard Beginnyng Makth a Good Endyng

When a serious security vulnerability is discovered in the SSL/TLS protocol, one would naturally expect a rapid response. "Analysis of SSL Certificate Reissues and Revocations in the Wake of Heartbleed," by Zhang et al., paints …

Kenny Paterson
Page 108

Analysis of SSL Certificate Reissues and Revocations in the Wake of Heartbleed

We use Heartbleed, a widespread OpenSSL vulnerability from 2014, as a natural experiment to determine whether administrators are properly managing their X.509 certificates.

Liang Zhang, David Choffnes, Tudor Dumitraş, Dave Levin, Alan Mislove, Aaron Schulman, Christo Wilson
Pages 109-116

COLUMN: LAST BYTE

Q&A: The Network Effect

The developer of convolutional neural networks looks at their impact, today and in the long run.

Leah Hoffmann
Pages 120-ff