

DEPARTMENT: FROM THE PRESIDENT

Reflections on My Two Years

I see ACM as a continual 'work in progress' as computing and our community evolves. In the future, I believe ACM will need to constantly reassess priorities and activities to ensure we remain vital to the global computing community ...

Vicki L. Hanson

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DEPARTMENT: CERF'S UP

On Neural Networks

Many applications are surfacing for neural network systems, including reliable identification of diseases (for example, diabetic retinopathy, cancerous cells), situational awareness for self-driving cars, and a raft of other ...

Vinton G. Cerf

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DEPARTMENT: VARDI'S

INSIGHTS

How the Hippies Destroyed the Internet

Communism is the most famous 20th-century attempt to build market-free economies. It required coercion on a colossal scale. The Internet is the second major attempt to build a market-free economy, limited to information.

Moshe Y. Vardi

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DEPARTMENT: LETTERS

TO THE EDITOR

Teach the Law (and the AI) 'Foreseeability'

AI is a sort of idiot savant that can be unpredictably, and potentially, dangerously literal.

CACM Staff

Pages 10-11

DEPARTMENT: BLOG@CACM

We Are Done With 'Hacking'

Today's programmers offer more valuable skills than simply being able to hack algorithms and make data structures, says Yegor Bugayenko.

Yegor Bugayenko

Pages 12-13

COLUMN: NEWS

Why Cryptocurrencies Use So Much Energy—and What to Do About It

The electricity consumption of mining for cryptocurrencies is becoming a real concern. Here's what to do about it.

Logan Kugler

Pages 15-17

You've Got Mail!

And that's not all. Email is not what it used to be.

Gary Anthes

Pages 18-19

**Bringing the
Internet to the**

(Developing) World

A growing number of low-cost (and free!) solutions aim to open the Internet to developing regions.

Keith Kirkpatrick
Pages 20-21

COLUMN: LEGALLY

SPEAKING

Copyright Blocks a News-Monitoring Technology

An evolving technological landscape has made application of copyright law increasingly difficult.

Pamela Samuelson
Pages 24-26

COLUMN: ECONOMIC AND

BUSINESS DIMENSIONS

Blockchain Revolution Without the Blockchain?

Most of the suggested benefits of blockchain technologies do not come from elements unique to the blockchain.

Hanna Halaburda
Pages 27-29

COLUMN: BROADENING

PARTICIPATION

Beyond Diversity

Considering the confluence of research questions and sociopolitical dynamics.

Alex Ahmed
Pages 30-32

COLUMN: VIEWPOINT

A New Perspective on Computational Thinking

Addressing its cognitive essence, universal value, and curricular practices.

Osman Yaşar
Pages 33-39

**The Case for
Disappearing**

Cyber Security

A proposal for keeping cyber security both out of sight and out of mind for end users.

Josiah Dykstra, Eugene H. Spafford
Pages 40-42

SECTION: PRACTICE

C Is Not a Low-Level Language

Your computer is not a fast PDP-11.

David Chisnall
Pages 44-48

**How to Come Up
with Great Ideas**

Think like an entrepreneur.

Kate Matsudaira
Pages 49-51

**Research for
Practice: Toward a**

Network of Connected Things

Expert-curated guides to the best of CS research.

Deepak Vasisht, Peter Bailis
Pages 52-54

ARTICLES

Making Machine Learning Robust Against Adversarial Inputs

Such inputs distort how machine-learning-based systems are able to function in the world as it is.

Ian Goodfellow, Patrick McDaniel, Nicolas Papernot

Pages 56-66

**Digital Nudging:
Guiding Online****User Choices through Interface Design**

Designers can create designs that nudge users toward the most desirable option.

Christoph Schneider, Markus Weinmann, Jan vom Brocke

Pages 67-73

**Always Measure
One Level Deeper**

Performance measurements often go wrong, reporting surface-level results that are more marketing than science.

John Ousterhout

Pages 74-83

SECTION: REVIEW

ARTICLES

The ABCs of Effectiveness in The Digital Society

Digital effectiveness is not the same as mastering the ICTs, rather it is the art of using them in a purposeful, healthy way.

Carlo Gabriel Porto Bellini

Pages 84-91

SECTION: RESEARCH

HIGHLIGHTS

Technical Perspective: The Rewards of Selfish Mining

"Majority Is Not Enough: Bitcoin Mining Is Vulnerable," by Eyal and Sirer, questions the 2009 Bitcoin white paper's implicit assumption of perfect information—that all miners have the same view of the blockchain.

Sharon Goldberg, Ethan Heilman

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**Majority Is Not
Enough: Bitcoin****Mining Is Vulnerable**

We propose a practical modification to the Bitcoin protocol that protects Bitcoin in the general case.

Ittay Eyal, Emin Gün Sirer

Pages 95-102

COLUMN: LAST BYTE

String Wars

Suppose someone gives you two strings: X and Y. Your goal is . . .

Dennis Shasha

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