

DEPARTMENT: LETTER FROM USACM

Toward Algorithmic Transparency and Accountability

There is a common misconception that algorithms automatically result in unbiased decisions.

Simson Garfinkel, Jeanna Matthews, Stuart S. Shapiro, Jonathan M. Smith

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DEPARTMENT: CERF'S UP

Take Two Aspirin and Call Me in the Morning

I am fascinated by the metaphor of cyber security as a public health problem.

Vinton G. Cerf

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DEPARTMENT: VARDI'S INSIGHTS

Divination by Program Committee

Divination is the practice of an occultic ritual as an aid in decision making. Developments in mathematics and in computer science in the 20th century shed new light on the power of divination.

Moshe Y. Vardi

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DEPARTMENT: LETTERS TO THE

EDITOR

Computational Thinking Is Not Necessarily Computational

I applaud Peter J. Denning's "Remaining Trouble Spots with Computational Thinking" (June 2017), especially for pointing out the subject itself is often characterized by "vague definitions and unsubstantiated claims."

CACM Staff

Pages 8-9

DEPARTMENT: BLOG@CACM

Assuring Software Quality By Preventing Neglect

Robin K. Hill suggests software neglect is a failure of the coder to pay enough attention and take enough trouble to ensure software quality.

Robin K. Hill

Pages 10-11

COLUMN: NEWS

It's All About Image

Image recognition technology is advancing rapidly. Researchers are discovering new ways to tackle the task without enormous datasets.

Samuel Greengard

Pages 13-15

Broadband to Mars

Scientists are demonstrating that lasers could be the future of space communication.

Gregory Mone

Pages 16-17

Why GPS Spoofing Is a Threat to Companies,

Countries

Technology that falsifies navigation data presents significant dangers to public and private organizations.

Logan Kugler

Pages 18-19

Turing Laureates Celebrate Award's

50th Anniversary

ACM recently held a conference in celebration of the first 50 years of the ACM A.M. Turing Award.

Lawrence M. Fisher

Pages 20-23

Charles W. Bachman: 1924-2017

An engineer best known for his work in database management systems, and in techniques of layered architecture that include Bachman diagrams.

Lawrence M. Fisher

Pages 24-25

COLUMN: LAW AND TECHNOLOGY

Digitocracy

Considering law and governance in the digital age.

Joel R. Reidenberg

Pages 26-28

COLUMN: COMPUTING ETHICS

Is That Social Bot Behaving Unethically?

A procedure for reflection and discourse on the behavior of bots in the context of law, deception, and societal norms.

Carolina Alves de Lima Salge, Nicholas Berente

Pages 29-31

COLUMN: THE PROFESSION OF IT

Multitasking Without Thrashing

Lessons from operating systems teach how to do multitasking without thrashing.

Peter J. Denning

Pages 32-34

COLUMN: VIEWPOINT

Why Agile Teams Fail Without UX Research

Failures to involve end users or to collect comprehensive data representing user needs are described and solutions to avoid such failures are proposed.

Gregorio Convertino, Nancy Frishberg

Pages 35-37

When Does Law Enforcement's Demand

to Read Your Data Become a Demand to Read Your Mind?

On cryptographic backdoors and prosthetic intelligence.

Andrew Conway, Peter Eckersley

Pages 38-40

SECTION: PRACTICE

The Calculus of Service Availability

You're only as available as the sum of your dependencies.

Ben Treynor, Mike Dahlin, Vivek Rau, Betsy Beyer

Pages 42-47

Data Sketching

The approximate approach is often faster and more efficient.

Graham Cormode

Pages 48-55

10 Ways to Be a Better Interviewer

Plan ahead to make the interview a successful one.

Kate Matsudaira

Pages 56-58

SECTION: CONTRIBUTED ARTICLES

Moving Beyond the Turing Test with the Allen AI Science Challenge

Answering questions correctly from standardized eighth-grade science tests is itself a test of machine intelligence.

Carissa Schoenick, Peter Clark, Oyvind Tafjord, Peter Turney, Oren Etzioni

Pages 60-64

Trust and Distrust in Online Fact-Checking

Services

Even when checked by fact checkers, facts are often still open to preexisting bias and doubt.

Petter Bae Brandtzaeg, Asbjørn Følstad

Pages 65-71

SECTION: REVIEW ARTICLES

Security in High-Performance Computing Environments

Exploring the many distinctive elements that make securing HPC systems much different than securing traditional systems.

Sean Peisert

Pages 72-80

SECTION: RESEARCH HIGHLIGHTS

Technical Perspective: A Gloomy Look at the Integrity of Hardware

"Exploiting the Analog Properties of Digital Circuits for Malicious Hardware," by Kaiyuan Yang, et al., assumes semiconductor foundries (and others in chip fabrication) can be malicious, modifying designs to produce devices that ...

Charles (Chuck) Thacker

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Exploiting the Analog Properties of Digital

Circuits for Malicious Hardware

We show how a fabrication-time attacker can leverage analog circuits to create a hardware attack that is small and stealthy.

Kaiyuan Yang, Matthew Hicks, Qing Dong, Todd Austin, Dennis Sylvester

Pages 83-91

Technical Perspective: Humans and Computers

Working Together on Hard Tasks

"Scribe," by Walter S. Lasecki, et al., is one of the first in a recent set of crowdsourcing papers that demonstrated how human workers can collaborate with computing systems to accomplish a real-time task that is difficult for ...

Ed H. Chi

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Scribe: Deep Integration of Human and Machine

Intelligence to Caption Speech in Real Time

We discuss how our Scribe system combines human labor and machine intelligence in real time to reliably convert speech to text with less than 4s latency.

Walter S. Lasecki, Christopher D. Miller, Iftekhar Naim, Raja Kushalnagar, Adam Sadilek, Daniel Gildea, Jeffrey P. Bigham

Pages 93-100

All The Pretty Pictures

Alexei Efros, recipient of the 2016 ACM prize in computing, works to harness the power of visual complexity.

Leah Hoffmann

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