

DEPARTMENT: DEPARTMENTS

Advancing Computing as a Science and Profession—But to What End?

It is time to revisit and update the purpose of ACM. It must be "to advance the science and profession of computing for the public good."

Moshe Y. Vardi

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DEPARTMENT: LETTERS TO

THE EDITOR

Conferences and Carbon Impact

Moshe Vardi suggests in his January 2020 column that ACM conferences do more to support remote participation. I have several concerns about his proposals.

CACM Staff

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DEPARTMENT: BLOG@CACM

Coding for Voting

Robin K. Hill explains the ethical responsibility of the computing professional with respect to voting systems.

Robin K. Hill

Pages 8-9

COLUMN: NEWS

Can Nanosheet Transistors Keep Moore's Law Alive?

The technology promises to advance semiconductors and computing, but also introduces new questions and challenges.

Samuel Greengard

Pages 10-12

Algorithms to Harvest the Wind

Wake steering can help ever-larger turbines work together more efficiently on wind farms.

Don Monroe

Pages 13-14

Across the Language Barrier

Translation devices are getting better at making speech and text understandable in different languages.

Keith Kirkpatrick

Pages 15-17

COLUMN: EDUCATION

Computing and Community in Formal Education

Culturally responsive computing repurposes computer science education by making it meaningful to not only students, but also to their families and communities.

Michael Lachney, Aman Yadav

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COLUMN: THE PROFESSION

OF IT

Dilemmas of Artificial Intelligence

Artificial intelligence has confronted us with a raft of dilemmas that challenge us to decide what values are important in our designs.

Peter J. Denning, Dorothy E. Denning

Pages 22-24

Through the Lens of a Passionate Theoretician

Considering the far-reaching and fundamental implications of computing beyond digital computers.

Omer Reingold

Pages 25-27

Four Internets

Considering the merits of several models and approaches to Internet governance.

Kieron O'Hara, Wendy Hall

Pages 28-30

Unsafe At Any Level

The U.S. NHTSA's levels of automation are a liability for automated vehicles.

Marc Canellas, Rachel Haga

Pages 31-34

Conferences in an Era of Expensive

Carbon

Balancing sustainability and science.

Benjamin C. Pierce, Michael Hicks, Crista Lopes, Jens Palsberg

Pages 35-37

SECTION: PRACTICE

Securing the Boot Process

The hardware root of trust.

Jessie Frazelle

Pages 38-42

Above the Line, Below the Line

The resilience of Internet-facing systems relies on what is above the line of representation.

Richard I. Cook

Pages 43-46

SECTION: CONTRIBUTED

ARTICLES

Crowdsourcing Moral Machines

A platform for creating a crowdsourced picture of human opinions on how machines should handle moral dilemmas.

Edmond Awad, Sohan Dsouza, Jean-François Bonnefon, Azim Shariff, Iyad Rahwan

Pages 48-55

Spotify Guilds

When the value increases engagement, engagement increases the value.

Darja Smite, Nils Brede Moe, Marcin Floryan, Georgiana Levinta, Panagiota Chatzipetrou

Pages 56-61

The BBC micro:bit – From the U.K. to

the World

A codable computer half the size of a credit card is inspiring students worldwide to develop core computing skills in fun and creative ways.

Jonny Austin, Howard Baker, Thomas Ball, James Devine, Joe Finney, Peli De Halleux, Steve Hodges, Michal Moskal, Gareth Stockdale

Pages 62-69

Editing Self-Image

Technologies for manipulating our digital appearance alter the way the world sees us as well as the way we see ourselves.

Ohad Fried, Jennifer Jacobs, Adam Finkelstein, Maneesh Agrawala

Pages 70-79

Toward Model-Driven

Sustainability Evaluation

Exploring the vision of a model-based framework that may enable broader engagement with and informed decision making about sustainability issues.

Jörg Kienzle, Gunter Mussbacher, Benoit Combemale, Lucy Bastin, Nelly Bencomo, Jean-Michel Bruel, Christoph Becker, Stefanie Betz, Ruzanna Chitchyan, Betty H. C. Cheng, Sonja Klingert, Richard F. Paige, Birgit Penzenstadler, Norbert Seyff, Eugene Syriani, Colin C. Venters

Pages 80-91

SECTION: RESEARCH

HIGHLIGHTS

Technical Perspective: A Perspective on Pivot Tracing

Instead of handing trace records off to a collector for long-term storage and future processing, the system described in "Pivot Tracing: Dynamic Causal Monitoring for Distributed Systems," by Jonathan Mace, *et al.*, installs continuous ...

Rebecca Isaacs

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Pivot Tracing: Dynamic Causal

Monitoring for Distributed Systems

This paper presents Pivot Tracing, a monitoring framework for distributed systems, which addresses the limitations of today's monitoring and diagnosis tools by combining dynamic instrumentation with a novel relational operator ...

Jonathan Mace, Ryan Roelke, Rodrigo Fonseca

Pages 94-102

COLUMN: LAST BYTE

Stopping Tyranny

A compromise proposal toward a solution to making it impossible for a would-be tyrant to exceed reasonable authority.

Dennis Shasha

Pages 104-ff