

DEPARTMENT: DEPARTMENTS

What Should Be Done About Social Media?

One of the most basic and urgent policy questions is how to tackle the rising role of social media in our public sphere.

Moshe Y. Vardi

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DEPARTMENT: CAREER

PATHS IN COMPUTING

A Career Unfolds in Phases

I can divide my career into three phases: practicing science, enabling science, and advocating for science.

Celeste M. Rohlifing

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DEPARTMENT:

LETTERS TO THE EDITOR

Weighing Grad School Payback

In his September 2020 column, Moshe Vardi criticizes Trump Administration policies prohibiting foreign graduate students and points out the dearth of domestic graduate students willing to fill positions. I would like to share ...

CACM Staff

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DEPARTMENT:

BLOG@CACM

Bringing Industry Back to Conferences, and Paying for Results

David Patterson wants to boost industry submissions to conferences, while Yegor Bugayenko suggests productivity should govern coders' pay when they work from home.

David Patterson, Yegor Bugayenko

Pages 12-13

COLUMN: NEWS

Seeking Artificial Common Sense

The long-standing goal of providing artificial intelligence some measure of common sense remains elusive.

Don Monroe

Pages 14-16

**Natural
Language**

Misunderstanding

How do we eliminate bias in automated speech recognition?

Keith Kirkpatrick

Pages 17-18

**Terahertz
Networks Move**

Closer to Reality

The desire for faster, higher-frequency wireless networking is a constant. Terahertz technology could deliver large gains.

Samuel Greengard

Pages 19-21

Tracing May Protect Privacy, But It Is Unlikely to Stop the Pandemic

Considering the potential benefits versus the risks of privacy-enhancing technologies.

Lorrie Faith Cranor

Pages 22-24

SPEAKING

Copyright's Online Service Providers Safe Harbors Under Siege

Reviewing the most significant changes recommended in the recently released U.S. Copyright Office Section 512 Study.

Pamela Samuelson

Pages 25-27

AND BUSINESS DIMENSIONS

Using Data and Respecting Users

Three technical and legal approaches that create value from data and foster user trust.

Marshall W. Van Alstyne, Alisa Lenart

Pages 28-30

It Is Time for More Critical CS Education

By which 'critical' means an intellectual stance of skepticism, centering the consequences, limitations, and unjust impacts of computing in society.

Amy J. Ko, Alannah Oleson, Neil Ryan, Yim Register, Benjamin Xie, Mina Tari, Matthew Davidson, Stefania Druga, Dastyni Loksa

Pages 31-33

Where Should Your IT Constraint Be?: The Case of the Financial Services Industry

Locating the strategic location of the IT junction constraint.

Boaz Ronen, Alex Coman

Pages 34-37

News

Using argument technology to strengthen critical literacy skills for assessing media reports.

Jacky Visser, John Lawrence, Chris Reed

Pages 38-40

AMERICA REGIONAL SPECIAL SECTION

Welcome

The special section on Latin America highlights the excellent level of research in computer science that flourishes in the Spanish- and Portuguese-speaking countries in the region.

Virgilio Almeida, Gonzalo Navarro, Sergio Rajsbaum

Pages 42-44

SPECIAL SECTION: HOT TOPICS

Estimating Amazon Carbon Stock Using AI-based Remote Sensing

This work presents advances in the way of a more accurate estimate of the carbon captured by forest areas, in particular the Amazon rainforest and its peculiarities.

Rosiane De Freitas, João M. B. Cavalcanti, Sergio Cleger, Niro Higuchi, Carlos Henrique Celes, Adriano Lima
Pages 46-48

Why Me?: Shedding Light

on Random Processes via Randomness Beacons

Solving the apparent paradox of potentially unpredictable random process results is the objective of a verifiable randomness service offered by the University of Chile.

Alejandro Hevia, Camilo Gómez

Pages 49-50

Toward Smart and Sustainable

Cities

Evidence-based public policymaking is starting to gain attention as governments and academic projects apply modern computer science techniques to develop tools for operating a city's daily life and guiding long-term management ...

Fabio Kon, Kelly Braghetto, Eduardo Z. Santana, Roberto Speicys, Jorge Guerra Guerra

Pages 51-52

A Technological and Innovative

Approach to COVID-19 in Uruguay

This article presents a technological and innovative approach developed to help the Uruguayan government in their fight against COVID-19.

Gastón Milano, Diego Vallespir, Alfredo Viola

Pages 53-55

Contextualized Interpretable

Machine Learning for Medical Diagnosis

The explanations of prediction models must be based on features that are meaningful to physicians.

Wagner Meira, Antonio L. P. Ribeiro, Derick M. Oliveira, Antonio H. Ribeiro

Pages 56-58

Understanding Salsa: How

Computing Is Defining Latin Music

An interdisciplinary research field called music information retrieval seeks to develop computational data search and retrieval techniques applied to music.

Carlos Arce-Lopera, Gerardo M. Sarria M.

Pages 59-60

Minding the AI Gap in LATAM

It is critical for underrepresented communities in technology to foster initiatives that are committed to developing tools for the local adoption of AI.

Barbara Poblete, Jorge Pérez

Pages 61-63

Three Success Stories About

Compact Data Structures

Compact data structures have been at the forefront of research in data structures over the last 20 years.

Diego Arroyuelo, José Fuentes-Sepúlveda, Diego Seco

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SECTION: LATIN

AMERICA REGIONAL SPECIAL SECTION: BIG TRENDS

The Latin American Supercomputing Ecosystem for Science

High-performance computing represents a strategic resource for Latin American researchers to respond to the region's economical and societal challenges.

Isidoro Gitler, Antônio Tadeu A. Gomes, Sergio Nesmachnow

Pages 66-71

Digital Healthcare in

Latin America: The Case of Brazil and Mexico

Digital Healthcare can help address some of the challenges of the healthcare system in Latin America.

Monica Tentori, Artur Ziviani, Débora C. Muchaluat-Saade, Jesus Favela

Pages 72-77

Chile's New Interdisciplinary

Institute for Foundational Research on Data

The Millennium Institute for Foundational Research on Data aims to be a reference center in Latin America related to state-of-the-art research on the foundational problems with data and its application to tackling diverse issues ...

Marcelo Arenas, Pablo Barceló

Pages 78-83

A Panorama of Computing in

Central America and the Caribbean

Costa Rica has managed to close the gap in access to technology for its citizens, and it is now leading the way in the region.

Gerardo Torres Zelaya

Pages 84-89

Imaging Sciences R&D

Laboratories in Argentina

A brief history of three research laboratories with the most relevant R&D activities in imaging sciences in Argentina.

Claudio Delrieux, Virginia Ballarín, Cristian García Bauza, Mario A. López

Pages 90-95

A Tour of Dependable Computing Research in Latin America

A view of dependable computing research in Latin America.

Elias P. Duarte, Raimundo J. A. Macêdo, Eliane Martins, Sergio Rajsbaum

Pages 96-101

**A Perspective
on Theoretical**

Computer Science in Latin America

The Latin American theoretical computer science community has made many noteworthy achievements.

Marcos Kiwi, Yoshiharu Kohayakawa, Sergio Rajsbaum, Francisco Rodríguez-Henríquez, Jayme Luiz Szwarcfiter, Alfredo Viola

Pages 102-107

SECTION: PRACTICE

Five Nonobvious Remote Work Techniques

Emulating the efficiency of in-person conversations.

Thomas A. Limoncelli

Pages 108-110

**Data on the
Outside versus**

Data on the Inside

Data kept outside SQL has different characteristics from data kept inside.

Pat Helland

Pages 111-118

SECTION:

CONTRIBUTED ARTICLES

Coding at a Crossroads

While millions of students worldwide have enjoyed coding experiences over the last decade, the next challenge is spreading educational values and approaches.

Mitchel Resnick, Natalie Rusk

Pages 120-127

SECTION: REVIEW

ARTICLES

The Graph Isomorphism Problem

Exploring the theoretical and practical aspects of the graph isomorphism problem.

Martin Grohe, Pascal Schweitzer

Pages 128-134

SECTION: RESEARCH

HIGHLIGHTS

Technical Perspective: When the Adversary Is Your Friend

The key insight of the "Generative Adversarial Networks," by Ian Goodfellow *et al.*, is to learn a generative model's loss function at the same time as learning the model.

Alexei A. Efros, Aaron Hertzmann

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**Generative
Adversarial**

Networks

In this overview paper, we describe one particular approach to unsupervised learning via generative modeling called generative adversarial networks. We briefly review applications of GANs and identify core research problems related ...

Ian Goodfellow, Jean Pouget-Abadie, Mehdi Mirza, Bing Xu, David Warde-Farley, Sherjil Ozair, Aaron Courville, Yoshua Bengio

Pages 139-144

**Technical
Perspective:**

BLeak: Semantics-Aware Leak Detection in the Web

What is the right leak oracle that can precisely capture the behavior of leaks in Web applications? "BLeak: Automatically Debugging Memory Leaks in Web Applications," by John Vilks and Emery D. Berger, provides a simple and yet ...

Harry Xu

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**BLeak:
Automatically**

Debugging Memory Leaks in Web Applications

This paper introduces BLeak (Browser Leak debugger), the first system for automatically debugging memory leaks in web applications.

John Vilks, Emery D. Berger

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COLUMN: LAST BYTE

Tackling the Challenges of CS Education

Chris Stephenson on the complex challenges that continue to plague the computer science education community.

Leah Hoffmann

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