

DEPARTMENT: CERF'S UP

On the Internet of Medical Things

It is entirely feasible to imagine the Internet of Medical Things with a significant capacity for remote medical diagnosis and triage.

Vinton G. Cerf

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DEPARTMENT: BLOG@CACM

How WWII Was Won, and Why CS Students Feel Unappreciated

John Arquilla considers how code-breaking helped end a war, while Jeremy Roschelle ponders the use of music in data science education.

John Arquilla, Jeremy Roschelle

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COLUMN: NEWS

Neuromorphic Chips Take Shape

Chips designed specifically to model the neurons and synapses in the human brain are poised to change computing in profound ways.

Samuel Greengard

Pages 9-11

Digital Humans on the Big Screen

Motion pictures are using new techniques in computer-generated imagery to create feature-length performances by convincingly "de-aged" actors.

Don Monroe

Pages 12-14

Are We Addicted to Technology?

Experts agree technology causes some negative behaviors, but they are divided on how bad the problem is.

Logan Kugler

Pages 15-16

COLUMN: BROADENING

PARTICIPATION

TECHNOLOchicas: A Critical Intersectional Approach Shaping the Color of Our Future

A unique partnership seeks to address the underrepresentation and unique barriers facing Latina women and girls of color in information technology.

Jannie Fernandez, JeffriAnne Wilder

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COLUMN: KODE VICIOUS

Broken Hearts and Coffee Mugs

The ordeal of security reviews.

George V. Neville-Neil

Pages 22-23

COLUMN: EDUCATION

Data-Centricity: A Challenge and Opportunity for Computing Education

Rethinking the content of introductory computing around a data-centric approach to better engage and support a diversity of students.

Shriram Krishnamurthi, Kathi Fisler

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COLUMN: VIEWPOINT

OMSCS: The Revolution Will Be Digitized

Lessons learned from the first five years of Georgia Tech's Online Master of Science in Computer Science program.

Zvi Galil

Pages 27-29

Thorny Problems in Data (-Intensive)

Science

Data scientists face challenges spanning academic and non-academic institutions.

Christine L. Borgman, Michael J. Scroggins, Irene V. Pasquetto, R. Stuart Geiger, Bernadette M. Boscoe, Peter T. Darch, Charlotte Cabasse-Mazel, Cheryl Thompson, Milena S. Golshan

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SECTION: PRACTICE

To Catch a Failure: The Record-and-Replay Approach to Debugging

A discussion with Robert O'Callahan, Kyle Huey, Devon O'Dell, and Terry Coatta.

CACM Staff

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Power to the People

Reducing datacenter carbon footprints.

Jessie Frazelle

Pages 41-45

SECTION: CONTRIBUTED

ARTICLES

Digital Creativity Support for Original Journalism

A tool that helps journalists discover new story angles by offering insight not search results.

Neil Maiden, Konstantinos Zachos, Amanda Brown, Dimitris Apostolou, Balder Holm, Lars Nyre, Aleksander Tonheim, Arend van den Beld

Pages 46-53

Why Computing Belongs Within the

Social Sciences

Fully appreciating the overarching scope of CS requires weaving more than ethics into the reigning curricula.

Randy Connolly

Pages 54-59

Examining Undergraduate

Computer Science Participation in North Carolina

Data on CS graduation rates among six academic institutions in NC traces the demographics of those participating (or not) in the discipline.

Fay Cobb Payton, Alexa Busch

Pages 60-68

Threats of a Replication Crisis in Empirical Computer Science

Research replication only works if there is confidence built into the results.

Andy Cockburn, Pierre Dragicevic, Lonni Besançon, Carl Gutwin

Pages 70-79

HIGHLIGHTS

Technical Perspective: Entity Matching with Magellan

Magellan's key insight is that a successful entity matching system must offer a versatile system building paradigm for entity matching that can be easily adapted for different application needs.

Wang-Chiew Tan

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Magellan: Toward Building Ecosystems

of Entity Matching Solutions

Entity matching can be viewed as a special class of data science problems and thus can benefit from system building ideas in data science.

AnHai Doan, Pradap Konda, Paul Suganthan G. C., Yash Govind, Derek Paulsen, Kaushik Chandrasekhar, Philip Martinkus, Matthew Christie

Pages 83-91

Technical Perspective:

Supporting Linear Algebra Operations in SQL

Do we need a completely new database system to support machine learning?

Yannis Papakonstantinou

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Scalable Linear Algebra on a

Relational Database System

We show that by making just a few changes to a parallel/distributed relational database system, such a system can become a competitive platform for scalable linear algebra.

Shangyu Luo, Zekai J. Gao, Michael Gubanov, Luis L. Perez, Dimitrije Jankov, Christopher Jermaine

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Seeing Light at the End of the Cybersecurity Tunnel

After decades of cybersecurity research, Elisa Bertino remains optimistic.

Leah Hoffmann

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