DEPARTMENT: CERF'S UP

The Internet in the 21st Century

Many people are finding ways to do harmful things through the Internet medium. Responses to these abuses have been sporadic at best.

Vinton G. Cerf

Page 5

DEPARTMENT: LETTERS

TO THE EDITOR

Hennessy and Patterson on the Roots of RISC

Awarding ACM's 2017 A.M. Turing Award to John Hennessy and David Patterson was richly deserved and long overdue. It would have been good if "Rewarded for RISC" (June 2018) had mentioned the contributions of John Cocke at IBM. …

CACM Staff

Pages 6-7

DEPARTMENT: BLOG@CACM

Can We Use AI for Global Good?

Amir Banifatemi observes how the AI for Good Summit "allowed us to start a dialogue, find a common frame of reference, and decide how our steps would be smart and structured."

Amir Banifatemi

Pages 8-9

COLUMN: NEWS

Floating Voxels Provide New Hope for 3D Displays

In search of holograms that can be viewed from any angle.

Chris Edwards

Pages 11-13

Transient Electronics Take Shape

Advances in materials science and chemistry are leading to self-destructing circuits and transient electronics, which could impact many fields.

Samuel Greengard

Pages 14-16

The Dangers of Automating Social Programs

Is it possible to keep bias out of a social program driven by one or more algorithms?

Esther Shein

Pages 17-19

COLUMN: TECHNOLOGY

STRATEGY AND MANAGEMENT

The Business of Quantum Computing

Considering the similarities of quantum computing development to the early years of conventional computing.

Michael A. Cusumano

Pages 20-22

COLUMN: PRIVACY AND SECURITY

A Pedagogic Cybersecurity Framework

A proposal for teaching the organizational, legal, and international aspects of cybersecurity.

Peter Swire

Pages 23-26

COLUMN: KODE VICIOUS

The Obscene Coupling Known as Spaghetti Code

Teach your junior programmers how to read code.

George V. Neville-Neil

Pages 27-28

COLUMN: VIEWPOINT

Building the Universal Archive of Source Code

A global collaborative project for the benefit of all.

Jean-François Abramatic, Roberto Di Cosmo, Stefano Zacchiroli

Pages 29-31

Are CS Conferences (Too) Closed Communities?

Assessing whether newcomers have a more difficult time achieving paper acceptance at established conferences.

Jordi Cabot, Javier Luis Cánovas Izquierdo, Valerio Cosentino

Pages 32-34

SECTION: PRACTICE

The Mythos of Model Interpretability

In machine learning, the concept of interpretability is both important and slippery.

Zachary C. Lipton

Pages 36-43

The Secret Formula for Choosing the Right Next Role

The best careers are not defined by titles or résumé bullet points.

Kate Matsudaira

Pages 44-46

Mind Your State for Your State of Mind

The interactions between storage and applications can be complex and subtle.

Pat Helland

Pages 47-54

SECTION: CONTRIBUTED

ARTICLES

Human-Level Intelligence or Animal-Like Abilities?

What just happened in artificial intelligence and how it is being misunderstood.

Adnan Darwiche

Pages 56-67

Formally Verified Software in the Real World

Verified software secures the Unmanned Little Bird autonomous helicopter against mid-flight cyber attacks.

Gerwin Klein, June Andronick, Matthew Fernandez, Ihor Kuz, Toby Murray, Gernot Heiser
Pages 68-77

The Productivity Paradox in Health Information Technology

New York State healthcare providers increased their use of the technology but delivered only mixed results for their patients.

Quang "Neo" Bui, Sean Hansen, Manlu Liu, Qiang (John) Tu
Pages 78-85

SECTION: REVIEW

ARTICLES

Computing Within Limits

The future of computing research relies on addressing an array of limitations on a planetary scale.

Bonnie Nardi, Bill Tomlinson, Donald J. Patterson, Jay Chen, Daniel Pargman, Barath Raghavan, Birgit Penzenstadler
Pages 86-93

SECTION: RESEARCH

HIGHLIGHTS

Technical Perspective: A Control Theorist's View on Reactive Control for Autonomous Drones

"Fundamental Concepts of Reactive Control for Autonomous Drones" introduces the notion of "reactive control" in which an autopilot's control logic is run only intermittently based on whether readings from sensors indicate a need …

John Baillieul
Page 95

Fundamental Concepts of Reactive Control for Autonomous Drones

We conceive a notion of reactive control that allows drones to execute the low-level control logic only upon recognizing the need to, based on the influence of the environment onto the drone operation.

Luca Mottola, Kamin Whitehouse
Pages 96-104

Technical Perspective: The Future of MPI

"Enabling Highly Scalable Remote Memory Access Programming with MPI-3 One Sided" convincingly shows that the potential of MPI one-sided communication can be realized.

Marc Snir
Page 105

Enabling Highly Scalable Remote Memory Access Programming with MPI-3 One Sided

In this work, we design and develop bufferless protocols that demonstrate how to implement the MPI-3 RMA interface and support scaling to millions of cores.

Robert Gerstenberger, Maciej Besta, Torsten Hoefler
Pages 106-113

COLUMN: LAST BYTE

Reaping the Benefits of a Diverse Background

Earlier this year, ACM named Dina Katabi of the Massachusetts Institute of Technology's Computer Science and Artificial Intelligence Laboratory recipient of the 2017 ACM Prize in Computing for her

creative contributions to wireless …

Leah Hoffmann

Pages 120-ff