

DEPARTMENT: EDITOR'S LETTER

## What Do DDT and Computing Have in Common?

In addition to reaping computing's bounty (education, information access, entertainment, commerce, efficiency, and more), we should "own" and work to reduce the negative impacts of computing.

*Andrew A. Chien*

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DEPARTMENT: LETTERS

TO THE EDITOR

## Safety Proposal Points in Same Direction

In her February 2020 column ("Are You Sure Your Software Will Not Kill Anyone?"), Nancy Leveson says the solution to software safety is not "building a software architecture and generating the requirements later." We are surprised ...

*CACM Staff*

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DEPARTMENT: CERF'S UP

## Implications of the COVID-19 Pandemic

There is no doubt in my mind that our profession and the products it creates will have a prominent role in shaping our post-COVID-19 society.

*Vinton G. Cerf*

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DEPARTMENT:

BLOG@CACM

## Detecting/Preventing Infections, and Moving Instruction Online

Terrence DeFranco suggests the Internet of Things could be keeping us safer, and Jeremy Roschelle airs issues related to online instruction.

*Terrence DeFranco, Jeremy Roschelle*

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COLUMN: NEWS

## An Animating Spirit

ACM A.M. Turing Award recipients, Ed Catmull and Pat Hanrahan, overcame industry indifference to found Pixar and put their computer graphics expertise to work.

*Neil Savage*

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**Leveraging  
Unlabeled Data**

Deep learning looks for better pretexts.

*Chris Edwards*

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**Seeing Through  
Walls**

Artificial intelligence makes sense of radio signals to understand what someone in another room is doing.

*Neil Savage*

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**Hiring from the  
Autism Spectrum**

Companies increasingly are looking to hire people who are on the autism spectrum to fill IT roles.

*Esther Shein*

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## How to Curtail Oversensing in the Home

Limiting sensitive information leakage via smart-home sensor data.

*Connor Bolton, Kevin Fu, Josiah Hester, Jun Han*

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## Kode Vicious Plays in Traffic

With increasing complexity comes increasing risk.

*George V. Neville-Neil*

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### PROFESSION OF IT

## Technology Adoption

The S-shaped curve of technology adoption is a welcome recurrence in an otherwise chaotic adoption world.

*Peter J. Denning, Ted G. Lewis*

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## Studying Programming in the Neuroage: Just a Crazy Idea?

Programming research has entered the Neuroage.

*Janet Siegmund, Norman Peitek, André Brechmann, Chris Parnin, Sven Apel*

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## AI and Accessibility

A discussion of ethical considerations.

*Meredith Ringel Morris*

Pages 35-37

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## Commit to Memory

Chipping away at Moore's Law.

*Jessie Frazelle*

Pages 38-41

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## Communicate Using the

## Numbers 1, 2, 3, and More

Leveraging expectations for better communication.

*Thomas A. Limoncelli*

Pages 42-44

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### ARTICLES

## Meltdown: Reading Kernel Memory from User Space

Lessons learned from Meltdown's exploitation of the weaknesses in today's processors.

*Moritz Lipp, Michael Schwarz, Daniel Gruss, Thomas Prescher, Werner Haas, Jann Horn, Stefan Mangard, Paul Kocher, Daniel Genkin, Yuval Yarom, Mike Hamburg, Raoul Strackx*

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## The 'Invisible' Materiality of

## Information Technology

It's difficult to see the ecological impact of IT when its benefits are so blindingly bright.

*Alan Borning, Batya Friedman, Nick Logler*

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SECTION: REVIEW

## ARTICLES

### Contextual Word Representations: Putting Words into Computers

Advances in how programs treat natural language words have a big impact in AI.

*Noah A. Smith*

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### Street Lamps as a Platform

Strategically augmented street lamps can become the key enabling technology in smart cities.

*Max Mühlhäuser, Christian Meurisch, Michael Stein, Jörg Daubert, Julius Von Willich, Jan Riemann, Lin Wang*

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SECTION: RESEARCH

## HIGHLIGHTS

### Technical Perspective: Algorithm Selection as a Learning Problem

"Data-Driven Algorithm Design," by Rishi Gupta and Tim Roughgarden, addresses the issue that the best algorithm to use for many problems depends on what the input "looks like."

*Avrim Blum*

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### Data-Driven Algorithm Design

We model the problem of identifying a good algorithm from data as a statistical learning problem.

*Rishi Gupta, Tim Roughgarden*

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COLUMN: LAST BYTE

### Attaining The Third Dimension

ACM A.M. Turing Award recipients Ed Catmull and Pat Hanrahan discuss how they helped to bring the power of three-dimensional imagery to computer graphics.

*Leah Hoffmann*

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