DEPARTMENT: DEPARTMENTS

## Highlights of the ACM Student Research Competition

Since 2003, ACM in conjunction with Microsoft have sponsored research competitions for undergraduate and graduate students in computing. The following process is used to select SRC winners.

***Laurie Williams, Doug Baldwin***

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DEPARTMENT: CERF'S UP

## Heidelberg Laureate Forum

This is the fifth year of the Heidelberg Laureate Forum and it continues to be a highlight of the year for me and for about 250 others who participate. This year, computer science was heavily represented.

***Vinton G. Cerf***

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DEPARTMENT: VARDI'S INSIGHTS

## Would Turing Have Won the Turing Award?

Today, Alan Turing is widely regarded as one of the most outstanding scientists of the 20th century, but that was not the case in 1966. The question, therefore, can be posed as follows: Would Turing have won the Turing Award? …

***Moshe Y. Vardi***

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DEPARTMENT: LETTERS TO THE EDITOR

## They See What You See

"When Does Law Enforcement's Demand to Read Your Data Become a Demand to Read Your Mind?" (Sept. 2017) was an important contribution to the ongoing debate over electronic backdoors. I would like to outline several key aspects …

***CACM Staff***

**Pages 8-9**

DEPARTMENT: BLOG@CACM

## Opportunities for Women, Minorities in Information Retrieval

Mei Kobayashi describes activities to support diversity and inclusion at the annual meeting of the ACM Special Interest Group on Information Retrieval in Tokyo this summer.

***Mei Kobayashi***

**Pages 10-11**

COLUMN: NEWS

## A Block on the Old Chip

Block copolymers may help transistors shrink to tinier dimensions.

***Neil Savage***

**Pages 12-14**

## Censoring Sensors

Amid growing outcry over controversial online videos, tech firms grapple with how best to police online advertising.

***Alex Wright***

**Pages 15-16**

## Overcoming Disabilities

Brain-computer interfaces hold the promise of fully featured replacements for body parts that don't work or are missing.

***Esther Shein***

**Pages 17-19**

COLUMN: LEGALLY SPEAKING

## Disgorging Profits in Design Patent Cases

Does the recent U.S. Supreme Court decision in the Apple v. Samsung case represent a quagmire?

*Pamela Samuelson*

**Pages 20-22**

**COLUMN: COMPUTING ETHICS**

## Engaging the Ethics of Data Science in Practice

Seeking more common ground between data scientists and their critics.

*Solon Barocas, Danah Boyd*

**Pages 23-25**

**COLUMN: EDUCATION**

## Keeping the Machinery in Computing Education

Incorporating intellectual and developmental frameworks into a Scottish school curriculum.

*Richard Connor, Quintin Cutts, Judy Robertson*

**Pages 26-28**

**COLUMN: VIEWPOINT**

## Pay What You Want as a Pricing Model for Open Access Publishing?

Analyzing the "Pay What You Want" business model for open access publishing.

*Martin Spann, Lucas Stich, Klaus M. Schmidt*

**Pages 29-31**

## Social Agents: Bridging Simulation and Engineering

Seeking better integration of two research communities.

*Virginia Dignum*

**Pages 32-34**

**SECTION: PRACTICE**

## Hootsuite: In Pursuit of Reactive Systems

A discussion with Edward Steel, Yanik Berube, Jonas Bonér, Ken Britton, and Terry Coatta

*CACM Staff*

**Pages 36-43**

## Breadth and Depth

We all wear many hats, but make sure you have one that fits well.

*Kate Matsudaira*

**Pages 44-45**

## Is There a Single Method for the Internet of Things?

Essence can keep software development for the IoT from becoming unwieldy.

*Ivar Jacobson, Ian Spence, Pan-Wei Ng*

**Pages 46-53**

**SECTION: CONTRIBUTED ARTICLES**

## Cambits: A Reconfigurable Camera System

Multiple computational cameras can be assembled from a common set of imaging components.

*Makoto Odamaki, Shree K. Nayar*

**Pages 54-61**

## User Reviews of Top Mobile Apps in Apple and

## Google App Stores

The varying review dynamics seen in different app stores can help guide future app development strategies.

*Stuart Mcilroy, Weiyi Shang, Nasir Ali, Ahmed E. Hassan*

**Pages 62-67**

**SECTION: REVIEW ARTICLES**

## Healthcare Robotics

Healthcare robotics can provide health and wellness support to billions of people.

*Laurel D. Riek*

**Pages 68-78**

**SECTION: RESEARCH HIGHLIGHTS**

## Technical Perspective: Solving Imperfect Information Games

"Heads-Up Limit Hold'em Poker Is Solved," by Michael Bowling, et al., takes the counterfactual regret minimization method for approximating a Nash equilibrium to the next level.

*David Silver*

**Page 80**

## Heads-Up Limit Hold'em Poker Is Solved

This paper is an extended version of our original 2015 *Science* article, with additional results showing Cepheus' in-game performance against computer and human opponents.

*Michael Bowling, Neil Burch, Michael Johanson, Oskari Tammelin*

**Pages 81-88**

## Technical Perspective: Exploring a Kingdom by Geodesic Measures

"The Heat Method for Distance Computation," by Crane, Weischedel, and Wardetzky, shows that the gradient of the probability density function of a random walk is parallel to geodesics.

*Marc Alexa*

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## The Heat Method for Distance Computation

We introduce the ***heat method*** for solving the single- or multiple-source shortest path problem on both flat and curved domains.

*Keenan Crane, Clarisse Weischedel, Max Wardetzky*

**Pages 90-99**

**COLUMN: LAST BYTE**

## Butterfly Effect

But, like the weather, what can anyone do about it?

*Seth Shostak*

**Pages 112-ff**