

**DEPARTMENT: DEPARTMENTS**

**Gender Diversity in Computing: are we making any progress?**

Recently I came across notes for a talk I gave in 1991 about women and computer science. It was depressing to read through it. Change the date and I could give the same talk today. How can that be?

*Valerie Barr*

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**A Genetic Theory of the Silicon Valley Phenomenon**

What is it about the residents of Silicon Valley that encourages risk taking? I have often wondered about that and have reached an interesting, if possibly controversial conclusion.

*Vinton G. Cerf*

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**DEPARTMENT: LETTERS TO THE EDITOR**

**Consider Indirect Threats of AI, Too**

Alan Bundy's Viewpoint "Smart Machines Are Not a Threat to Humanity" (Feb. 2017) was too limited in light of the recent accomplishments of artificial intelligence. Reducing the entire field to four "successful AI systems" does ...

*CACM Staff*

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**DEPARTMENT: BLOG@CACM**

**Crafting a National Cyberdefense, and Preparing to Support Computational Literacy**

John Arquilla considers how we should interpret the alleged Russian cyberattack on the U.S. Presidential election; Mark Guzdial describes the potential benefits of a 'computing lab.'

*John Arquilla, Mark Guzdial*

Pages 10-11

**COLUMN: NEWS**

**Sensors on the Brain**

Implantable wireless monitors give researchers a new look inside the human body.

*Gregory Mone*

Pages 12-14

**Digitizing the World**

Digital maps trawl for real-time updates.

*Chris Edwards*

Pages 15-16

**Computing the Arts**

Artists can use software to create art, and some software creates art all on its own.

*Esther Shein*

Pages 17-19

**Cybersecurity**

2002 ACM Turing laureate Len Adleman, 2014 ACM Prize in Computing recipient Dan Boneh, 2015 ACM Grace Murray Hopper Award recipient Brent Waters, and ACM Fellows Patrick McDaniel and Paul Van Oorschot discuss current issues in ...

*CACM Staff*

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**COLUMN: GLOBAL COMPUTING**

**Online Social Networks and Global Women's Empowerment**

Mediating social change or reinforcing male hegemony?

*Ineke Buskens*

Pages 22-23

**COLUMN: KODE VICIOUS**

**The Chess Player Who Couldn't Pass the Salt**

AI: Soft and hard, weak and strong, narrow and general. Dear KV,

*George V. Neville-Neil*

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**COLUMN: VIEWPOINT**

**Wanted: Toolsmiths**

Seeking to use software, hardware, and algorithmic ingenuity to create unique domain-independent instruments.

*William Regli*

Pages 26-28

**What It Means to Be an Entrepreneur Today**

In his keynote address before the fifth edition of the Tech Open Air conference in Berlin in 2016, Kickstarter's cofounder and CEO Yancey Strickler suggests the city's tech community faces "a very rare opportunity."

*Yancey Strickler*

Pages 29-31

**SECTION: PRACTICE**

**Pervasive, Dynamic Authentication of Physical Items**

The use of silicon PUF circuits.

*Meng-Day (Mandel) Yu, Srinivas Devadas*

Pages 32-39

**Uninitialized Reads**

Understanding the proposed revisions to the C language.

*Robert C. Seacord*

Pages 40-44

**Does Anybody Listen to You?**

How do you step up from mere contributor to real change-maker?

*Kate Matsudaira*

Pages 45-46

**SECTION: CONTRIBUTED ARTICLES**

**Attack of the Killer Microseconds**

Microsecond-scale I/O means tension between performance and productivity that will need new latency-mitigating ideas, including in hardware.

*Luiz Barroso, Mike Marty, David Patterson, Parthasarathy Ranganathan*

Pages 48-54

**Computational Thinking for Teacher Education**

This framework for developing pre-service teachers' knowledge does not necessarily depend on computers or other educational technology.

*Aman Yadav, Chris Stephenson, Hai Hong*

Pages 55-62

**SECTION: REVIEW ARTICLES**

**A Service Computing Manifesto: The Next 10 Years**

Mapping out the challenges and strategies for the widespread adoption of service computing.

*Athman Bouguettaya, Munindar Singh, Michael Huhns, Quan Z. Sheng, Hai Dong, Qi Yu, Azadeh Ghari Neiat, Sajib Mistry, Boualem Benatallah, Brahim Medjahed, Mourad Ouzzani, Fabio Casati, Xumin Liu, Hongbing Wang, Dimitrios Georgakopoulos, Liang Chen, Surya Nepal, Zaki Malik, Abdelkarim Erradi, Yan Wang, Brian Blake, Schahram Dustdar, Frank Leymann, Michael Papazoglou*

Pages 64-72

**SECTION: RESEARCH HIGHLIGHTS**

**Technical Perspective: Proving File Systems Meet Expectations**

"Certifying a File System Using Crash Hoare Logic: Correctness in the Presence of Crashes" presents a big step toward real-world file systems that are crash-safe in a strict sense.

*Gernot Heiser*

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**Certifying a File System Using Crash Hoare Logic: Correctness in the Presence of Crashes**

This paper introduces Crash Hoare logic, which extends traditional Hoare logic with a crash condition, a recovery procedure, and logical address spaces for specifying disk states at

different abstraction levels.

*Tej Chajed, Haogang Chen, Adam Chlipala, M. Frans Kaashoek, Nikolai Zeldovich, Daniel Ziegler*

Pages 75-84

### **Technical Perspective: Building a Safety Net for Data Reuse**

The authors of "Guilt-Free Data Reuse" show there is a way to construct a safety net that goes around a fixed dataset so that it may be analyzed interactively without compromising statistical validity even when the dataset is ...

*Jonathan Ullman*

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### **Guilt-Free Data Reuse**

In this work, we initiate a principled study of how to guarantee the validity of statistical inference in adaptive data analysis.

*Cynthia Dwork, Vitaly Feldman, Moritz Hardt, Toniann Pitassi, Omer Reingold, Aaron Roth*

Pages 86-93

### **COLUMN: LAST BYTE**

#### **Stacking the Deck**

Consider 16 cards consisting of the ace through 8 of hearts and the ace through 8 of spades.

You are allowed to arrange the cards as you wish. Your opponent chooses a number between

1 and 8.

*Dennis Shasha*

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