

Building Consumer Trust Online • Surprising Findings About Inspections  
Licensing Software Engineers • GPS-Based Geographic Addressing

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# COMMUNICATIONS

April 1999—Volume 42, Number 4

of the ACM

## Evolvable Hardware

Open-  
source  
pioneers  
consider  
the Value  
of Free  
software



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## Editorial Pointers

**THIS** month, we look at the evolutions unfolding in the worlds of hardware and software, both surely representing milestones in their respective spheres.

We begin with a discussion of the value of free software, a controversial topic that has recently achieved new dimensions and spawned powerful and influential alliances—and foes. Our focus is the open-source process of making source code freely available online to all to use and customize as needed. Four pioneering players—Linus Torvalds, Larry Wall, Roy Fielding, and John Ousterhout—elaborate on their own experiences, as well as debate the ramifications of the open-source practice on collaborative software development.

Orchestrating this effort along with Managing Editor Tom Lambert is Tim O'Reilly, a respected book publisher noted for his leadership in the open-source community. Indeed, shortly before press time O'Reilly was awarded *InfoWorld's* Industry Achievement award as a representative of the collaborative software community. He responded by pointing out that open-source software is reinvigorating the computing industry. "The momentum behind Linux, the development of hybrid business models that include both open-source and propriety software by companies like Sendmail and Scriptics, and the continuing strength of open-source software, such as Apache and Perl, all point to a robust, diverse future for a spectrum of development models that leverage the strengths of collaborative development and open standards."

**OUR** special section this month details the emerging field of evolvable hardware, that is, hardware capable of changing its structure and behavior by interacting with its environment. Guest editor Xin Yao explains one of the key motivating factors behind EHW is the inflexibility of current tools and the need to build hardware that can learn and adapt dynamically online. The challenge is how to find the most effective methods for making hardware soft.

This section pulls together some of the most intriguing work in EHW from around the globe. Experts in the field evaluate how existing EHW systems are performing, and predict the future directions the field will take. We hope you find this select group of articles an ideal introduction to a fascinating field we have only begun to exploit.

*Diane Crawford*

Editor

**COMING NEXT MONTH:** The May issue will spotlight new developments in computer-human interaction with a special section on the captivating field of persuasive computing centering on interfaces designed to influence human behavior. Another valuable section will explore the diversity of usability practices.

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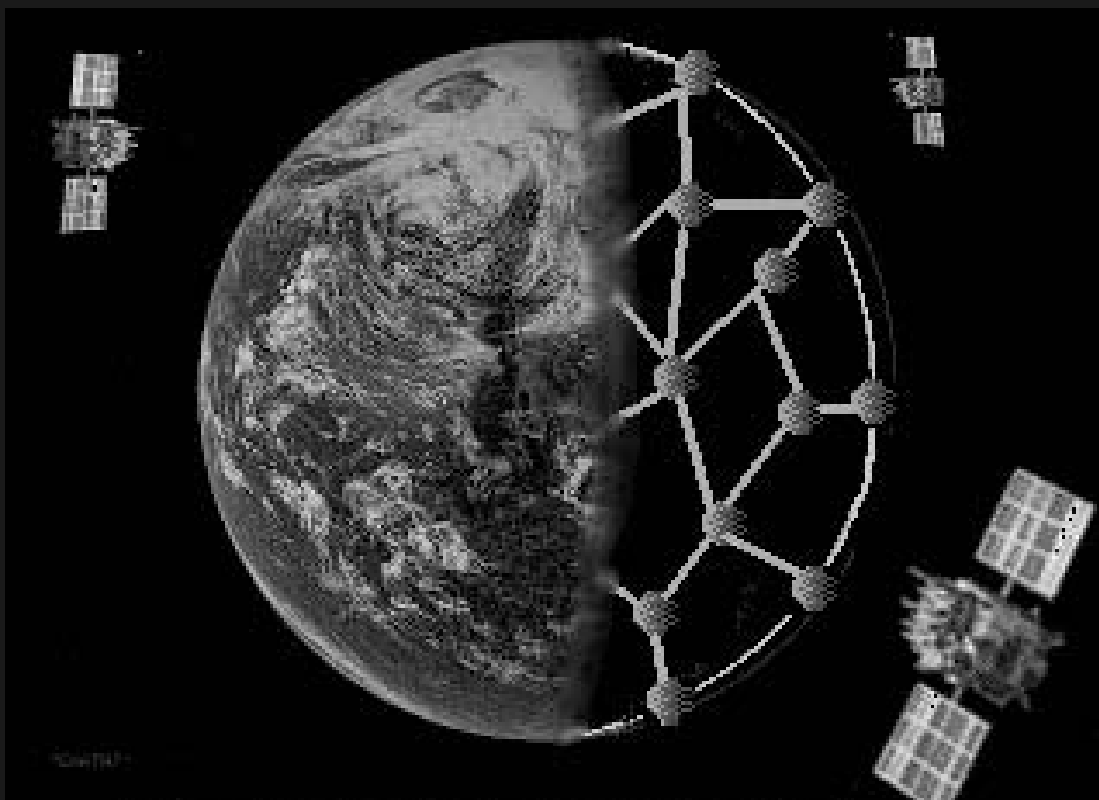
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