From the Editor in Chief

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Grasping the Torch

Roy Want

Having firmly grasped the torch that Mahadev Satyanarayanan handed to me, I feel like the second runner in a relay, sprinting to make as much progress as I can during my allotted time. Satya founded *IEEE Pervasive Computing*, which, in the last four years, has published a rich legacy of peer-reviewed work and earned a venerable reputation. I will do my best to maintain this reputation and, where possible, enhance it in pursuit of our collective cause. I thank Satya on behalf of the entire editorial team for doing a truly excellent job.

THE MAGAZINE'S MISSION

Ubiquitous and pervasive computing has been a major part of my life since the early 90s. At that time, mobile computing was in its infancy, but the potential for innovation was always clear. If anything, the opportunities are even greater today.

However, as our field's scope expands, it might be harder to predict where the next "big idea" will appear. As Satya described in the first issue back in January 2002, we created *IEEE Pervasive Computing* as a catalyst for innovation. It brings together many engineering disciplines to synthesize new systems that can enhance our work practices. Unlike many of the traditional computer science conferences and journals, which focus squarely on one subdiscipline, our publication deliberately looks to the junctures of two or more disciplines, as this is often where you find the most interesting and unexpected ideas. Only time will tell if the ideas are useful, but that's the nature of being on the bleeding edge.

WEISER AND HIS VISION

In the early part of my career, I had the good fortune of working with Mark Weiser at Xerox PARC. Mark, widely known as the pioneer of ubiquitous computing, began a vibrant research program in PARC's Computer Science Laboratory in 1988. At the time, I was working on the Active Badge project at Olivetti Research in Cambridge, UK. I originally created the Active Badge to augment computer-controlled telephony by routing calls to the intended recipient's location rather than to an often solitary phone handset.

When I learned about Mark's work, I felt an immediate synergy with his vision. In retrospect, his view of embedded computation and wireless communication, weaved "into the fabric of everyday life," was a bigger vision than location-based services. Yet it was a vision that could exploit the context that such services could provide. So, in 1991, when an opportunity arose to join Mark's team, I picked up my life and transplanted it to California's Silicon Valley. At first, I planned a short two-year stint, but it's now been 15 years.

Thinking back on my work with Mark, I remember him as a divergent thinker, someone who was always reevaluating the status quo and considering the next phase of computing. He was a natural leader, jolly and upbeat. It was fun to brainstorm with him on almost any topic. He was also a philosopher, recreational programmer, and a musician; he played the drums for a local group called Severe Tire Damage. His ubiquitous computing vision very much reflected his broad experience of life. Sadly, Mark passed away in 1999, but I feel privileged to have known him. Some of his ideas have undoubtedly rubbed off on me, and I expect they'll help guide the choices I must make for our magazine.

TEAMWORK

Creating real value for a community requires teamwork, and I'm proud to work with a highly skilled team at the IEEE Computer Society under the guidance of Angela Burgess, Dick Price, Crystal Shif, Shani Murray, and Hilda Hosillos, whom I have come to know and respect in my four years as an Associate EIC. Furthermore, the magazine's content is mainly the result of hard work by our AEICs, who assign reviewers and recommend articles for publi-

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cation. The AEICs and their areas of interest are

- Gaetano Borriello—hardware technologies and embedded systems;
- Tim Kindberg—software infrastructure;
- James Landay—graceful integration of technology with users; and
- Nigel Davis—deployment, scalability, security, and privacy.

In turn, the AEICs rely on the editorial board members, who provide reviews and recommendations using their specialized knowledge. The 24 editorial board members, many of whom have been with us since the founding of the magazine, help maintain our original goals and motivation. A list of the board members appears in the masthead on page 3, where you'll recognize many names, each with a considerable professional reputation.

Equally important is the hard work undertaken by the editors of our eight departments:

- Vince Standard—Applications,
- Mary Baker—Conferences,
- Scott Midkiff—Education & Training,
- Eyal de Lara and Keith Farkas—New Products,
- Chandra Narayanaswami—News,
- Sumi Helal—Standards & Emerging Technologies,
- Thad Starner—Wearable Computing, and
- Anthony Joseph—Works in Progress.

It's through their dedication and journalistic spirit that we have a constant, but always fascinating, framework for our readers to look forward to each issue.

A TASTE OF THINGS TO COME

Looking to the coming year, we've planned four special issues. For this January–March issue on RFID, I've played a more significant role than is usual for an EIC, serving as both a guest editor and author. This is primarily because of my transition from AEIC at the end of 2005; the content for this issue was reviewed last year while Satya was still the EIC. I elected to contribute to the issue because RFID is a technology that has intrigued me for many years. It has been part of my research and is particularly germane to pervasive computing. Because of the low cost of RFID tags, which require virtually no maintenance, this technology has the potential to be truly pervasive. Furthermore, because the retail industry is now adopting RFID, it could soon become one of the underlying building blocks for many practical pervasive systems. This issue provides articles that describe experiences with RFID design and deployment.

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The April–June issue will cover "Emerging Economies." This is a topic that should increasingly occupy our thinking as the major emerging economies of Asia ramp up and become customers for all forms of computing. However, unlike the West, which experienced the birth of the PC firsthand and shaped its design as a result of Western culture and business practices, these countries might not follow the PC's original design criteria. The relative role of the mobile- and fixed-computing infrastructure has already proven different, and any evolution of a pervasive infrastructure isn't likely to be based on a template we can currently imagine.

The July–September "Real-World Ubicomp Deployments: Lessons Learned" issue aims to take a closer look at the difficulties and successes that accompany ubiquitous computing systems in practice. Introducing computation to any existing work practice is likely to be destabilizing, and although it has the potential to improve work processes, it sometimes falls short for reasons not apparent to the designers. These reasons are often very subtle, and studying them is essential for anybody planning to build ubiquitous computing systems of their own.

For the October–December "Intelligent Transportation" issue, we plan to review pervasive computing's role in transportation. Transportation is a part of our lives that isn't just a means to an end, but one in which we can further enrich the journey through embedded computation. Vehicles are beginning to incorporate an increasingly sophisticated array of embedded computers, ranging from control systems that manage the vehicle's operation, to satellite navigation systems, location-based services, and on-demand entertainment. Thanks to technology's progress on many fronts, we can now use high-end computers where only simple embedded computers were economical before. Similarly, high-resolution flat-panel LCD displays have become both sufficiently compact and inexpensive to be incorporated into many airplane seats and the headrests of some midrange cars, opening up new application opportunities.

RESOLUTIONS

The beginning of a new year is always a good opportunity for introspection, so now is a good time to reflect on the magazine's content. Is it providing the articles you want to read? Are the departments covering the right areas? What could we add, retire, or evolve? Although I believe the magazine's current formula is a good one, there's always room for improvement, and needed improvements might be more apparent to you, our readers, than to me. I encourage you to send me suggestions that will be of value to the magazine's general readership. I can't promise to act on every request, but I will take each well-presented proposal seriously and discuss it with my colleagues.

FROM THE EDITOR IN CHIEF

NEW EDITORIAL BOARD MEMBER

John Krumm is a researcher at Microsoft Research in Redmond, WA. He has worked on techniques for measuring a person's location and context using video cameras, active badges, Wi-Fi, FM radio, GPS, and Global Systems for Mobile Communications. More recently, he's been working on ways to use location data to benefit users, such as for local search, automatic travelogues, location-based alerting, driving directions, and location prediction. He received his BA in mathematics, physics, and computer science from Augustana College. He received his PhD in robotics from Carnegie Mellon University, with a thesis on texture analysis in images. Contact him at Microsoft, One Microsoft Way, Redmond, WA 98052; jckrumm@microsoft.com; http://research.microsoft.com/~jckrumm.

One of the most pressing issues for any publication's editorial board is to ensure there is a growing reader base. There is clear evidence that pervasive computing is thriving by examining the increasing number of new conferences and workshops in this area since 2000. Similarly, our annual submissions numbers continue to be strong. However, we also need to ensure that our subscription base grows commensurately with such activity. If you have suggestions on how we might foster interest in our publication for new communities of researchers, please let me know. At mid-year, the board will meet for our annual editorial board meeting, and I will reserve part of that meeting to discuss the most promising ideas.

FUTURE TRENDS

If I were to predict pervasive computing's future, I would conclude it to be a bright one. Never before have so many mobile computers been in the hands of so many people. In fact, analysts have estimated that the world market for mobile semiconductors in 2004 and 2005 was greater than 35 percent of all semiconductors by volume and worth over $80 billion. In early 2005, top market research firms predicted cell phones, which constitute the largest mobile market segment, would have a total sales volume of around 775 million units, but by the fourth quarter, the Gartner group revised their own prediction to over 800 million units.

In the next few years, we'll see cell phone sales climb to 1 billion units, perhaps the strongest evidence that pervasive computing has the potential to touch the lives of a very large proportion of the planet. In fact, last April we published an entire issue on smart phones (April–June 2005). This technology has so much power to influence our field, it's almost certain to appear repeatedly as a topic of special interest in future issues.

AN ENCOURAGING NOTE

Although our board and the IEEE Computer Society editorial team can provide guidance and optimize the presentation of ideas and news, it's ultimately your work that will be the life blood of the magazine. We're currently receiving over 100 submissions a year, with an acceptance rate of less than 19 percent, validating our high standards and peer review process. This is an encouraging sign that the magazine has grown its reputation from its unknown beginning in 2002 and is now an attractive venue for original work.

When I arrive at Intel's headquarters in Santa Clara, California, each morning, I pass a quotation from Robert Noyce, Intel cofounder: "Do not be encumbered by history. Go off and do something wonderful." I can't imagine a more fitting phrase to encourage anybody working in our field, except to add, "And please consider submitting your results to *IEEE Pervasive Computing*." P

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