L
ike many of us, I’m watching colleagues, friends, and family members grow grey. Our industry, on the other hand, is young and constantly evolving to support new and better gadgets and gear. Over the years, I’ve developed a fear that pervasive computing might be fundamentally incompatible with aging.

A NEED FOR CONSISTENCY
Yet our elders need the support of the gadgets and gear that we’re inventing. We need to help them live at home safely and comfortably—for their own well-being as well as for economic and demographical reasons (given the number of baby boomers retiring and number of children available to care for them). The elderly need reminders for activities of daily living (such as e-pill Medication Reminders; www.epill.com/seneptoyourp.html); “brain games” to maintain their mental health (such as those offered at www.lumosity.com); and ways to stay connected with family and friends (via phone, video chat, email, text messaging, and social media).

Our industry designs devices to last for a couple of years. We change the way the interfaces work on a regular basis, sometimes in pretty significant ways. We add new ways of interacting—by voice, vision, and touch. We change the look of icons, often for merely cosmetic reasons. We make fundamental changes to the way we interact with applications—seemingly just because we can. However, those who struggle with short-term-memory loss find it difficult to adapt to constant changes.

I know this from personal experience with my father. About 11 years ago, he was diagnosed with cancer. About a year after his treatment, he experienced the onset of Alzheimer’s-like symptoms as a direct side-effect of that treatment. My father was trained as an electrical engineer, but he worked as a biomedical engineer most of my life. He was a technically savvy “gadget guy” with the latest computer gear and coolest devices. When I moved him near my home so that I could supervise his treatment, I carefully analyzed existing cell phones to find one that would help him stay in contact with distant friends and relatives via both phone and email. I bought him a PalmPilot-based cell phone, because he had a lot of experience with the PalmPilot. Alas, he couldn’t adapt to the changes introduced to accommodate the phone capabilities—he simply couldn’t remember how to use the new features.

At some point, our industry must recognize this specialized need and create a platform with some amount of constancy that can be upgraded to new hardware as necessary, such as when phones get laundered or otherwise destroyed. People looking for phones for seniors will find a variety of basic phones that can text and have large, easy-to-read numbers. However, this is just the tip of the iceberg. As our population ages, we need to recognize that seniors are going to want and need full-function smartphones with a constant interface, regardless of upgrades or new versions.

I hope that my fears are unfounded, and we’ll eventually reach an equilibrium in which we can have new features and functions while maintaining a constant user experience if desired.

IN THIS ISSUE
This issue’s theme, “Pervasive Analytics and Citizen Science,” brings a focus on how data abounds in the world around us, with exabytes of...
new data generated on a daily basis. I thank the guest editors, John Canny, Cecilia Mascolo, and Eric Paulos, for pulling together a thought-provoking set of articles, focusing on the ubiquitous nature of data and the inclusion of citizens in collecting and analyzing that data to inform and improve the world around us.

In this issue, we also have three feature articles. In “A Secure Supply-Chain RFID System that Respects Your Privacy,” Alex Arbit, Yoosf Oren, and Avishai Wool demonstrate how public-key cryptography can be used to secure a global supply chain that uses RFID tags. The system improves upon the standard use of symmetric-key cryptography in that it reduces the trust required between the manufacturer of the tags and the owner of the supply chain while also protecting the privacy of the user who ultimately purchases the tagged products.

Our next feature article is “Push Notification Mechanisms for Pervasive Smartphone Applications,” by Ian Warren, Satish Sirama, Thiranjith Weerasinghe, Andrew Meads, and Carlos Paniagua. This article examines five push notification services, considering their design points and evaluating their performance based on an empirical study. Readers will find this an important reference as they design apps requiring push notification services.

In our final feature article, “Building a Practical Wi-Fi-Based Indoor Navigation System,” Dongsoo Han, Giwan Yoon, Sukhoon Jung, and Minkyu Lee explain how they built such a system for the COEX complex in Seoul, Korea. For anyone not familiar with the COEX, it’s a tremendously complex building that includes three large hotels, two large office towers, a department store, an aquarium, and a mall. Having visited the COEX several years ago, I know that an indoor navigation system is much needed, at least for tourists. Readers will appreciate both the huge undertaking these authors have achieved and the lessons they share.

**CALL FOR PROPOSALS**

IEEE Pervasive Computing’s annual editorial board meeting will be in June. At this time, the board will review the state of the magazine and discuss any issues that have come up. Most importantly, though, we set the themes for upcoming issues. If you would like to see a particular topic covered in our magazine, please consider submitting a proposal.

Your proposal should contain at least the following sections:

- a proposed title;
- your contact information;
- a brief explanation of the theme and how it fits in the larger context of pervasive and ubiquitous computing;
- a list of questions that will be addressed or perspectives that will be described;
- a list of potential reviewers and authors (include academic, industrial, and governmental contributors);
- a sample call for papers;
- a list of two more qualified guest editors.

The deadline is 1 June 2014. For questions or to submit a special issue proposal, contact Brian Kirk at bkirk@computer.org or see www.computer.org/portal/web/computingnow/cfps/pc. You can also submit topic suggestions via our Facebook page (www.facebook.com/pervasivecomputing).

**EDITORIAL BOARD CHANGES**

We say goodbye to Eyal de Lara, a long-time member of our editorial board. He has decided to step down so that he can focus on his new role as Editor-in-Chief of ACM SIGMOBILE’s Mobile Computing and Communications Review (MC2R). We wish him the best as he steps into this important role. I thank him for the many years of service he has given to Pervasive Computing.

I’m delighted to announce that Marc Langheinrich has agreed to step into the role of Associated Editor-in-Chief. Langheinrich’s significant expertise in security and privacy will help us maintain a strong focus on these important aspects of pervasive computing. I’m also delighted to introduce James Scott as a new board member. Scott brings a wide range of expertise in the area of pervasive computing, including sensors, wireless networking, energy management and rapid prototyping.

Marc Langheinrich is an associate professor at the Università della Svizzera italiana (USI) in Lugano, Switzerland, where he heads the Sensor Group for Ubiquitous Computing. The Ubiquitous Computing group’s research focuses on mobile and ubiquitous systems, the interactions with them, and their security and privacy implications. Langheinrich received his PhD on the topic of “Privacy in Ubiquitous Computing” from the ETH Zurich. He is one of the authors of P3P, a W3C-standard for privacy on the Web, and has published extensively on both privacy and usability of ubiquitous and pervasive computing systems. Contact him at langheinrich@acm.org.

James Scott is a researcher in the Sensors and Devices group at Microsoft Research in Cambridge, UK. His research interests span a wide range of topics in ubiquitous and pervasive computing, and include novel sensors and devices, mobile interaction, rapid prototyping, wireless and mobile networking, energy management, and security and privacy. He has a PhD in computer science from the University of Cambridge. Contact him at james.scott@microsoft.com.

Before I get to the departments, I’d like to take a moment to thank IEEE Pervasive Computing’s reviewers. These individuals are the foundation of our peer-review process. A list of the 2013 reviewers will be included with this department online (doi: 10.1109/MPRV.2014.20).
For our departments this issue, we start with Notes from the Community, where Mary Baker and Jason Hong provide a preview of our October-December issue on Wearable computing by highlighting some of the concept and real-world applications of wearable computing. I found some to be compelling and others to be a bit more whimsical.

On a related note, our Wearable Computing department describes some fascinating research on two-way communication between working dogs and their handlers. These researchers are using wearable sensors to let dogs and their handlers communicate from a distance. As someone with a bit of familiarity with dog training, I thoroughly enjoyed this piece and think you will, too!

In the Innovations in Ubicomp Products department, Jochen Meyer and Susanne Boll provide summary of pervasive devices for monitoring health and fitness at home. They look at fitness monitors, wireless scales, and blood-pressure cuffs. As someone who recently started wearing a fitness device to track my activity and sleep patterns, I found the article interesting and very relevant.

The Pervasive Health department, contributed by Anind Dey, highlights some fascinating research on two-way communication between working dogs and their handlers. These researchers are using wearable sensors to let dogs and their handlers communicate from a distance. As someone with a bit of familiarity with dog training, I thoroughly enjoyed this piece and think you will, too!

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