Welcome to the October–December issue of IEEE Pervasive Computing. I’m typing this shortly after returning from the 2013 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp 2013) in Zurich. The conference represented the marriage of the previous Ubicomp and Pervasive conference series and was colocated with the International Symposium on Wearable Computers (ISWC 2013).

This merging of two well-renowned conference series into a single event represented a real step into the unknown for our community. Predicting attendance numbers, for example, was extremely challenging. I’m delighted to report that the event was spectacularly successful, with over 700 registered delegates (versus approximately 350 for the previous conferences). The conference chairs and local staff and volunteers did an outstanding job, and the result was a credit to our research community—demonstrating once again that the vision of ubiquitous and pervasive computing remains as compelling today as it did when first described.

However, to turn this vision into reality, we’ll need to closely consider a range of mundane issues, such as how to pay for the infrastructure and technologies supporting pervasive computing. Continuing on with the cross-cutting themes I’ve been discussing this year, in this issue I focus on the role of payments in pervasive computing systems—exploring not just who might pay and how, but also the form of payment.

**PAYING FOR PERVERSIVE COMPUTING**

For many years, a key question surrounding pervasive computing has been what business models and mechanisms are likely to emerge that will fund the installation and maintenance of the infrastructure required. Within this context, there has been a significant amount of research. For example, members of my own group considered how micropayment architectures developed for the Web might enable charging for ubiquitous computing services.1 More recently, Sasank Reddy, Deborah Estrin, Mark Hansen, and Mani Srivastava have explored the use of micropayments to incentivize data collection in participatory sensing applications.2

Of course, money might not have to change hands to fund the future pervasive computing infrastructure—a range of alternatives exist. For example, Mahadev Satyanarayanan (the founding EIC of this magazine) has articulated a vision in which the owners of physical spaces provide computing infrastructure (in the form of cloudlets) in much the same way as they currently provide basic furniture, such as tables and chairs. Such a model might work particularly well in environments such as cafes, airports, or company reception areas.

Another alternative is to partly or fully fund future pervasive computing environments through advertising revenue—in much the same way as many Web services are funded today. In some areas of pervasive computing research, this makes some sense. For example, researchers interested in public displays have often explored new advertising models. More generally, the field of pervasive advertising has grown in recent years.3 Of course, for many users, the prospect of a world in which millions of pervasive computing components conspire to deliver personalized advertising is hardly desirable.

Perhaps the most important realization that has occurred in recent years

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**MISSION STATEMENT:** IEEE Pervasive Computing is a catalyst for advancing research and practice in mobile and ubiquitous computing. It is the premier publishing forum for peer-reviewed articles, industry news, surveys, and tutorials for a broad, multidisciplinary community.
is that money might not be the most important (or valuable) currency when we think of pervasive computing environments. In a recent presentation, Albrecht Schmidt highlighted the many different currencies involved in paying for elements of a pervasive computing environment. For example, as many researchers have noted, human attention is a scarce resource that might form part of the “payment” for any pervasive computing service. Determining how to classify and monetize different levels of attention will require significant research. Nevertheless, the possibility of complex models emerging involving a wide range of payment methods and currencies is intriguing and should prove a rich vein of future research.

IN THIS ISSUE
This issue’s theme is “The Edge of the Cloud,” with Maria R. Ebling, Eyal de Lara, Alec Wolman, and Ada Gavriloaia as guest editors. As mobile computing devices continue to increase in both capabilities and diversity, it’s increasingly clear that to realize their full potential, such devices must operate in close conjunction with cloud services. Indeed, mobile and pervasive devices are likely to be key components that form, or are at, the edge of the cloud, as the worlds of pervasive and cloud computing converge. I thank the guest editors for putting together such a strong special issue on this exciting and timely topic.

This issue also presents two feature articles on mobile and pervasive systems. In “Nearby Friend Alert: Location Anonymity in Mobile Geosocial Networks,” Hong Ping Li, Haibo Hu, and Jianliang Xu tackle the problem of providing privacy-preserving proximity detection. This type of work is particularly important, given the ever-increasing number of location sharing applications.

Our second feature article is “Evaluating Ambient Assisted Living Solutions: The Localization Competition,” by Paolo Barsocchi, Stefano Chessa, Francesco Furfari, and Francesco Potorti. This interesting article tackles the problem of determining an appropriate set of standard tests for evaluating assisted living solutions using an international competition to help drive improvements.

This issue also includes five departments. The Conferences department reports on the 11th International Conference on Mobile Systems, Applications and Services (MobiSys 2013), held in June in Taipei, Taiwan. Just as Ubicomp 2013 marked a landmark for the pervasive and ubiquitous computing communities, MobiSys 2013 marked an important landmark for the mobile computing community, given that this was the first time that the conference was held in Asia.

In addition to our Conferences department, we have a Spotlight piece on the Second International Symposium on Pervasive Displays (PerDis 13). Hosted at Google’s Mountain View campus, the conference focused on the design and use of future pervasive display systems.

In our Innovations in Ubicomp Products department, Hitomi Tsujita and Jun Rekimoto focus on digital appliances that encourage people to smile more. Communications between pervasive devices is the subject of our Smartphones department, with Roy Want, Bill Schilit, and Dominik Laskowski discussing the role of Bluetooth Low Energy in smartphones.

Finally, our Pervasive Health department reports on the Technology & Dementia symposium at the 2013 Alzheimer’s Association International Conference, highlighting everyday technologies for Alzheimer’s disease care.

INCOMING EDITOR IN CHIEF
Maria R. Ebling is a research staff member and senior manager at the IBM T.J. Watson Research Center. She manages a team building systems capable of supporting a Smarter Planet while not forgetting about the people who use such systems. Ebling received her PhD in computer science from Carnegie Mellon University. She’s a member of the IBM Academy of Technology and a senior member of the IEEE and of the ACM. Contact her at ebling@us.ibm.com.

NEW ASSOCIATE EIC
Jason Hong is an associate professor in the Human Computer Interaction Institute, part of the School of Computer Science at Carnegie Mellon University. He’s also a co-founder of Wombat Security Technologies, which focuses on the human side of computer security. He works in the areas of ubiquitous computing and usable privacy and security. Hong received his PhD from Berkeley. He has participated on DARPA’s Computer Science Study Panel (CSSP), is an Alfred P. Sloan Research Fellow, and is a Kavli Fellow. Contact him at jasonh@cs.cmu.edu.
Our departments are consistently regarded by readers as a key component of the magazine, and it’s exciting that this year we have been able to include a large number of very strong departments. I hope you enjoy reading them.

**CHANGES TO THE EDITORIAL BOARD**

This issue we have a number of changes to the editorial board to report. Tucker Balch and Natalia Marmasse are both retiring from the board after many years of service. I thank them for their work on the magazine. I’m delighted to report that we also have two new board members to maintain the strength of our board: Stephen Intille and Robin Kravets. Intille brings expertise in activity recognition and pervasive health—both of which are important areas for the magazine. Furthermore, he’s well known to the community by acting as one of the editors of our Pervasive Health department. Kravets brings extensive experience in wireless networking support for mobile and pervasive applications and will help shape the magazine’s work on networking and communications for ubiquitous computing.

Finally, existing board member Jason Hong will be taking over a new role as one of our Associate EICs. IEEE Pervasive AEICs perform a crucial role—leading the review of all papers in their area of expertise. Jason will be responsible for many of the papers in the HCI and usable-security domains, and the magazine will be considerably strengthened by his input.

I thank all those who have been involved with the magazine during the last four years, including the IEEE Computer Society staff, who have provided me with truly outstanding support, tolerating my many quirks as EIC. I would particularly like to mention Jennifer Stout, Kathleen Clarke-Fisher, Shani Murray, and Brian Kirk, who make our regular phone calls a pleasure.

I’m delighted to announce that my successor will be Maria R. Ebling from IBM. Maria currently serves as an AEIC and has been involved with the magazine for many years. I have absolutely no doubt that the magazine is in excellent hands, and I look forward to watching Pervasive Computing continue to grow.

**REFERENCES**


Nigel Davies is a professor at Lancaster University. His research focuses on pervasive public displays and mobile computing support for travel. Contact him at nigel@comp.lancs.ac.uk.

Selected CS articles and columns are also available for free at http://ComputingNow.computer.org.