The Path Across the Great Deep

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This issue of Computer takes us on a journey through many different approaches to digital navigation.

I t is possible, entirely possible, that our age will be known as the Great Age of Digital Navigation. We will tell romantic stories to our children and grandchildren about how we launched our ships on the vast oceans of data and went in search of the wonders of the deep.

We have had great networks to explore, massive databases to chart, and, of course, complex video games to master. All of these demand that we learn the skills of digital navigation. This issue of *Computer* takes us on a voyage through many different approaches to digital navigation. Nag and Jain give us the more direct discussion of navigation techniques in their article "A Navigational Approach to Health: Actionable Guidance for Improved Quality of Life." In this article, the authors argue that our health is not merely a simple state that we can monitor but a complex world that we have to explore. This idea has been developed over the past several years in the literature of digital health. The authors give a rich discussion of this approach. However, you can find useful companion pieces in other magazines, such as *IEEE Pervasive Computing*. Last year in that magazine, Amft had an article that discussed the impact of wearable health devices. It can be found in IEEE *Xplore* with the digital object identifier 10.1109/MPRV.2018.011591067.

From digital health, we move to cyber hygiene, or the robustness of our computer systems. Such and his coauthors ask, "Basic Cyber Hygiene: Does It Work?" The answer to this question is yes, as we would hope it would be. However, there are constraints on that response. We need to understand those constraints to guide our systems to good, clean, working health.

If one article from this issue becomes a permanent part of your library, it will be De Francesco's piece on navigating Europe's General Data Protection Regulation, "The General Data Protection Regulation's Practical Impact on Software Architecture." De Francesco states clearly that good data protection comes from a good design, not from a collection of postdevelopment actions that respond to immediate problems. To get where you're going, you need a good plan.

Three more articles this month refine our navigation skills. Fawaz and Shin complement our journey by discussing how we establish "Security and Privacy in the Internet of Things." Kshetri and his coauthors, in the "Cybertrust" column, remind us that we have to navigate both the digital and physical world when we deal with issues, such as cyberbullying. In both pieces, we clearly see that we cannot ignore the physical world no matter how much time we spend in the digital universe.

Finally, Farahmand and Farahmand give us the most intriguing article in the issue, "Privacy Decision Making: The Brain Approach." Though it uses sophisticated research to make its point, the article provides a simple lesson. We make decisions about privacy not only with rational logic but with our emotions. We stand at the mast of our digital ship inspired by a romantic urge to explore but hindered by a fear of the digital monsters that dwell in the deep.

With this issue, Dirk Riehle introduces a new column, "Open Source Expanded," and reminds us that we have to traverse a very complex world to build open source, a world that involves legal, organizational, and financial innovations as well as new technical tools.

If you need any further proof that ours is the Great Age of Digital Navigation, see if you can find a working copy of Walter Crowther's pioneering *Adventure* game from the 1970s. It was one of the first computer games that didn't model itself on ping-pong or cards, and it became the model for all subsequent exploration games. (GitHub has an online copy available at https://quuxplusone.github.io/Advent/.) Once you start the program, you'll begin exploring a world that could only have existed in digital technology. C

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