

GetMobile



IoT PLATFORMS FOR SPORTS ANALYTICS

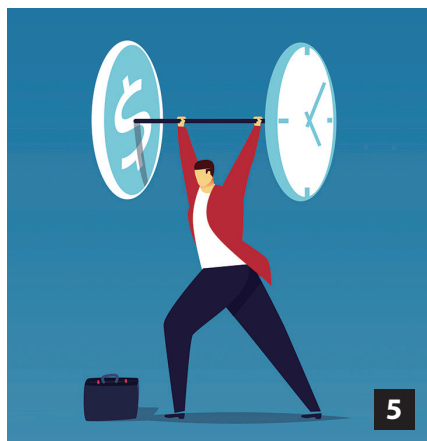
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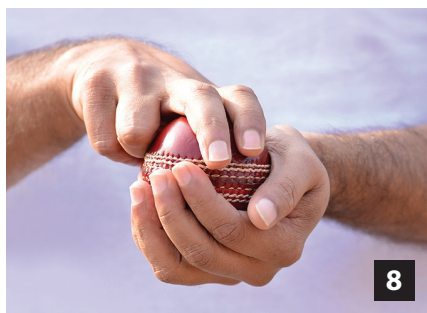
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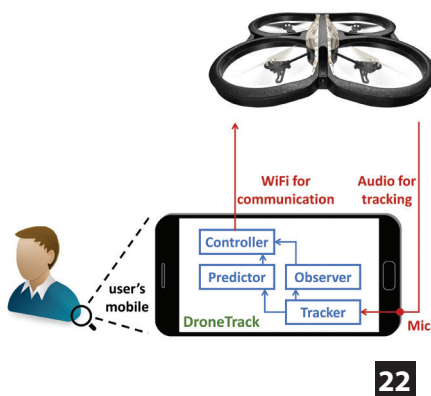
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MESSAGE FROM THE EDITOR-IN-CHIEF

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Eyal de Lara

IN THIS ISSUE, we introduce a new Awards column. With Robert LiKamWa from Arizona State University as its inaugural editor, this column showcases the top recognitions bestowed by ACM SIGMOBILE. The first Awards column features Dr. Norman Abramson, who received the 2017 SIGMOBILE Outstanding Contributions Award for *“fundamental contributions to the theory and practice of random access wireless networking.”*

This issue highlights four papers from

ACM MobiSys 2017. “Card-Stunt as a Service: Empowering a Massively Packed Crowd for Instant Collective Expressiveness,” by Chungkuk Yoo, Inseok Hwang, Seungwoo Kang, Myung-Chul Kim, Seonghoon Kim, Daeyoung Won, Yu Gu, and June-hwa Song describes a system that makes it possible for a crowd to create a massive collective visualization using their smartphones. Their approach uses visible-light sensing to localize individuals in the crowd without using any infrastructure.

In “DroneTrack: An Indoor Follow-Me System Using Acoustic Signals,” Wenguang Mao and Lili Qiu describe a drone that supports indoor follow-me functions for high-quality videotaping. In their approach, the drone maintains a fixed distance from the subject being videotaped by decoding acoustic signals emitted by a smartphone app running on the mobile carried by the subject.

In “BackDoor: Sounds That a Microphone Can Record, but That Humans Can’t Hear,” Nirupam Roy, Haitham Hassanieh and Romit Roy Choudhury show that carefully designed ultrasound signals can be recorded by unmodified off-the-shelf microphones, while remaining inaudible to humans. The approach makes possible a range of new applications, including inaudible data communication, spy microphone jamming, and acoustic watermarking.

Lastly, in “Cost-Effective and Passive RF-based Drone Presence Detection and Characterization,” Phuc Nguyen, Hoang Truong, Mahesh Ravindranathan, Anh Nguyen, Richard Han and Tam Vu describe a passive sensing approach that detects the presence of a drone by identifying the unique signatures of its body vibration and body shifting in the transmitted wireless signals.

The rest of the issue consists of two more columns:

In the Experimental Methods column, Julie A. Kientz and Hyewon Suh argue that mobile app designers should look beyond traditional metrics for evaluating user experience, such as usability, look and feel, usefulness, and overall delight that users experience, and focus instead on the overall burden that the application places on the user. For example, a game may be irresistibly engaging, but also make users feel guilty about how much time they spend with it, or a fitness tracker designed to help people be more active only serves to make them feel badly about themselves for not exercising after sustaining an injury.

Finally, the (Almost) Unpublishable Results column features an article by Mahanth Gowda, Ashutosh Dhekne, Sheng Shen, Romit Roy Choudhury, Sharon Xue Yang, Lei Yang, Suresh Golwalkar, and Alexander Essanian that reports on their experience developing IoT platforms for sports analytics in general, and the sport of cricket in particular. Their system, iBall, embeds sensors inside cricket balls to track a ball's 3D trajectory and spin. iBall performs the fusion of wireless and inertial sensory data and integrates it into physics-based motion models of a ball in flight.

I hope you enjoy this issue, and I welcome your thoughts about *GetMobile* in general, and this issue in particular. ■

Editorial Board Changes

It is my pleasure to welcome Robert LiKamWa as the inaugural editor of the Awards column. Robert is an assistant professor at Arizona State University in the School of Arts, Media and Engineering (AME) and the School of Electrical, Computer and Energy Engineering (ECEE). He heads Meteor Studio (towards Mobile Experiential Technologies through Embedded Optimization Research), which designs novel software and hardware systems to raise the performance, efficiency, and expressiveness of smartphones, tablets, VR/AR devices, and other mobile systems. He completed his BS, MS, and PhD degrees at Rice University in the Department of Electrical and Computer Engineering. He has also interned at Microsoft Research in Redmond, Washington and in Beijing, China, and Samsung Mobile Processor Innovation Lab in Richardson, Texas.



Robert LiKamWa

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