As a preteen/teen in the early to mid-80s, I was an avid subscriber of comic books. My most-purchased comic book was *The Amazing Spiderman*, as Spiderman was my favorite superhero. However, being African-American, I was also fond of the African-American super heroes, which at the time included James Rhodes — who served as Iron Man for a stint and Luke Cage (also known as Power Man) from the *Power Man and Iron Fist* comics. For those who aren’t familiar with the comic book series from 30 years ago, then you might have seen the recent Netflix shows that have created separate *Luke Cage* and *Iron Fist* television series. At this point, you might be wondering about the relationship of comic books to the title of this editorial.

A character in the *Power Man and Iron Fist* comic book series was Gordy, who was an agent of the Special Military Intelligence Law Enforcement division (S.M.I.L.E; www.marvunapp.com/Appendix4/gordysmile.htm#smile). Gordy’s weapon of choice was his mobile device. His early ‘80s cellular phone, modeled as a household cordless phone, had the ability to create force fields in addition to projecting particle beams. The phone could also be used as a boomerang. On occasion he did actually make regular phone calls with it. Interestingly enough, in the early ‘80s, they didn’t mention him using it to access the Internet.

So, how does Gordy’s weapon tie in with the latest trends at the intersection of mobile computing and Internet computing? Well, much like Gordy’s use of mobile devices and generally all other areas of computing, a popular concern is the interaction of information and functions on the Internet with the real world using the mobile device as a medium. There are several themes that span next-generation mobile services as it relates to Internet computing.

Sensing and crowdsensing will enhance Internet computing. The use of mobile devices, and particularly those with location-based services, has become pervasive. The wide distribution of mobile users with GPS, accelerometers, cameras, and real-time human conversations has made it possible to provide situational awareness of the real world in areas such as traffic congestion, urban networks, and Wi-Fi conditions, as well as other geographical information services. There are several challenges that Internet computing experts must address, to name a few:

- There must be approaches to process big data from end-user mobile devices to mobile service providers. Subsequently, this information must be routed through the network to web services that can process the information within service-side applications.
- Other approaches must define authoritative sources in real time. Sensor-based information from multiple users representing the same or proximal situations will need to be merged, and in some cases conflicts must be resolved.
- The need to merge information and functions about real-world situations might lead to the resurgence of the techniques for web service discovery and composition. Discovering related functions on the Internet to fuse user-supplied information with information provided by web services might be the best way to ensure that the best operational picture is constructed in real time.

Accessible augmented or virtual reality will integrate with and leverage mobile devices. The use of augmented reality is currently (re)gaining
traction when intersecting mobile computing with Internet computing: for example, with the introduction or reintroduction of augmented reality headsets such as Google Glass\(^2\) and the recent virtual reality implemented with Samsung Galaxy.\(^3\) Recent studies are investigating the use of augmented reality headsets to connect to mobile devices,\(^4\) particularly as a user interface enabling access to large, multidimensional data sources. Many of the previously mentioned challenges of merging personal and public information must be used to create a subset of the most relevant information to fit for display on these devices. Moreover, the infrastructure to support these connections must intelligently queue information both on the Internet servers as well as the limited space on mobile devices.

As you can see, with the re-emergence of Power Man and Iron Fist 35 years later, our present-day Gordys might have other futuristic techniques for mobile devices beyond the boomerang and particle beams.

And in that vein, I hope you enjoy this month’s special issue on 5G. The guest editors – N.K. Shankaranarayanan and Arunabha Ghosh – along with the article authors and reviewers, have done a great job representing an emerging area of technology.

References


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