

## From the desk of Rouzbeh



Dr. Rouzbeh Yassini

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I delivered the **KEYNOTE ADDRESS** to the 50<sup>th</sup> Cable TV Pioneers Dinner in Boston and my request of them was to join me at BCoE in funding research and innovation to enable us to connect the millions of Americans with affordable, universal broadband service. Cable operators have built tremendous broadband networks and now could greatly benefit our country by continuing their service to ensure all Americans enjoy the commercial and social benefits of broadband.

### **Onward to Broadband Wireless Via 5G Technology**

Having affordable broadband service these days is as important as accessing any other utility. It is a cornerstone of 21<sup>st</sup> Century life. And, next generation universal wireless broadband services, known as 5G, is the ultimate. Broadly speaking, 5G is the 5<sup>th</sup> generation wireless broadband and has three key requirements: **1)** very high speed, like greater than 1 gigabit per second; **2)** very low latency possibly in the range of single digit milliseconds (for clarity’s sake, 1 ms. is about the duration of a strobe light flash); **3)** ultra-reliable connectivity for sensor based device. Taken as a whole, this means speeds and densities of 1000 times faster than what is achievable today via wireless, at 100 times less delay, leading to the likely ubiquitous deployment of the Internet of Things (IoT). But it won’t be easy.

5G is expected to be based on a broad array of existing and future standards from the IEEE, IETF, 3GPP and other standards development organizations. Some carriers have scheduled it for launch in 2020, but some see it delayed beyond that. The earliest pre-standard deployments will likely be at the PyeongChang 2018 Winter Olympics to be held in South Korea

Communications companies from around the globe are working on 5G. One such entity is Verizon. It recently hosted Goldman Sachs analysts at its HQ in New Jersey. A GS note indicated that part of the meeting involved a demonstration using one 800 MHz channel in the 28GHz spectrum supplied to an “apartment” of four ultra-high definition TVs, a WiFi router and three virtual reality headsets. The analyst note indicates that the widest channel Verizon currently uses in its LTE network is 20 MHz, 40 times more narrow than what was used in the demonstration.

### **Smart Campus**

A new grant from UNH’s **BROADBAND CENTER OF EXCELLENCE** (BCoE) to an interdisciplinary team of university researchers aims to showcase innovation in broadband technology and data analytics. Tapping a **\$1 MILLION GRANT FROM THE YAS FOUNDATION**, the BCoE requested proposals from UNH researchers in the area of “smart communities,” to propose use of extensive sensor data to inform and improve a wide range of city functions and phenomena, from traffic to air pollution to streetlights. **HERE’S** a news article about it.

As always, let us know of your ideas for future newsletter content and BCoE projects.

**Rouzbeh**