

A Brand New Wireless Day

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The wireless communications field has experienced a truly amazing growth since the early 1990's. Wireless connectivity slowly but surely has become pervasive. One would expect that by now this revolution must be losing some steam, but the truth is far from that. If anything, it is gathering even more speed. In the coming decades, introduction of innovative wireless technologies will enable a broad range of exciting applications to come to fruition, and reshape the way we interact with our daily living environment. Underlying it all is a three-tiered environment consisting of a large number of huge data and compute centers, billions of mobile compute and computation devices, and potentially trillions of tiny sensors and actuators.

Making this happen will require some important wireless roadblocks to be either overcome or circumvented. A short list of those includes spectrum scarcity, reliability, complexity, security and obviously power. In this presentation, a number of innovative and even revolutionary solutions to address these will be discussed. Examples are collaborative cognitive networks, wireless in the mm-wave region of the spectrum, and miniature wireless. Each of these approaches pushes some part of the design technology to its limits, and may even require a totally novel approach towards design, all this while semiconductor technology is trying to cope with the uncertainty of design in the nanometer regime.

One thing is for sure – the wireless designer of the next decade is bound for some very exciting times.