

The Promises and Challenges of the Wireless Frontier - from 600 MHz to 60 GHz

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Abstract: This is a great time to be a wireless researcher. Even though hundreds of wireless networking papers in dozens of conferences and journals are published every year, there is still a lot to do. We continue to discover compelling new scenarios that require wireless connectivity that is difficult to deliver. Policy makers and engineers who came together to enable a world of wireless connectivity in public places, large enterprises, and communities, are now coming together to enable connectivity in automobiles, hospitals, data centers and cell networks. In this talk, I will describe the rapidly changing landscape of the wireless frontier - discussing promising new directions in cognitive systems and opportunistic networks design. The problems we face need emerging technologies such as software defined radios, full-duplex radios, and multi-gigabit radios that operate in frequencies ranging from 600 MHz to 60 GHz. These problems will force us to continuously re-evaluate policies that come in the way of engineering. I will highlight some problems and discuss solutions that researchers have been developing. I will challenge the audience into taking on technical problems while thinking about associated policy changes and business models. My hope is that after listening to this talk, policy makers, scientists, engineers, students and entrepreneurs will agree that the wireless frontier is exciting and it is a great time to be a wireless researcher.

Biography: Victor Bahl is a Principal Researcher and the Founding Director of the Mobile Computing Research Center (MCRC). Formed in Jan. 2011, MCRC's mission is to make Microsoft's mobile devices indispensable to the world. The center engages in basic and applied multi-disciplinary research, builds proof-of-concept systems, engages with academia, publishes papers in prestigious conferences and journals, publishes software for the research community, and streamlines the transfer of cutting-edge technologies from MSR Labs world-wide to Microsoft's product divisions. Prior to MCRC, Victor founded the Networking Research Group and served as its manager for 8 years. He continues to help shape Microsoft's long-term vision related to networking technologies through research and associated policy engagement with governments and institutions around the world. His personal research interests span a variety of topics in mobile networking, wireless systems design, datacenter networking, and enterprise networking & management. He has authored over 110 peer-reviewed papers and 120 patent applications, 76 of which have issued; he has won best paper awards at SIGCOMM and CoNext and has delivered over two dozen keynote & plenary talks; he is the founder and past Chairperson of ACM SIGMOBILE, the founder and steering committee chair of the MobiSys; and the founder and past Editor-in-Chief of ACM Mobile Computing and Communications Review. He has served as the General Chair of several IEEE and ACM conferences including SIGCOMM and MobiCom, and is serving on the steering committees of seven IEEE & ACM conferences & workshop, several of which he co-founded. He has served on the board of over half-a-dozen journals; on several NSF, NRC and FCC panels, and on over six dozen program committees. He became an ACM Fellow in 2003, an IEEE Fellow in 2008 and a AAAS Fellow in 2010.

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