Beyond Listen-before-Talk: Cognitive Radio Access based on Primary Data Link Information

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歡迎參加

Abstract:Cognitive radio networks enable secondary users to utilize spare bandwidth of primary users by limiting their interference. Moving beyond the traditional listen-before-talk paradigm, we propose a cognitive access methodology that exploits the feedback channel in two-way primary communication links for better spectrum utility and protection of primary users against secondary interference. We let secondary users dynamically control access and power based on primary ACK/NACK messages. We develop an optimal access policy applicable to multiple secondary user pairs. We also devise a distributed power control policy for multiple secondary users to maximize their individual throughput without significant cumulative interference to the primary link. Our distributed access and power control schemes can effectively provide good SU performance and primary protection without requiring central coordination.

時間:98年4月23日(週四) 2:00-4:00p.m.
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Bio: Zhi Ding is the Child Family Endowed Professor of Engineering and Entrepreneurship at the University of California, Davis. He received his Ph.D. degree in Electrical Engineering from Cornell University in 1990. From 1990 to 1998, he was a faculty member of Auburn University. From 1998-2000, he was an associate professor of Electrical and Computer Engineering at the University of Iowa. He joined the University of California, Davis in 2000 as a professor of Electrical and Computer Engineering.
Prof. Ding is a Fellow of the IEEE and is named as 2004-6 Distinguished Lecturer by the Circuits and Systems Society. Professor Ding was associate editor for IEEE Transactions on Signal Processing from 1994-1997 and 2001-2004. He served as associate editor for IEEE Signal Processing Letters from 2002-2005. He was a member of the Editorial Board of the IEEE Signal Processing Magazine. He served as the Technical Program Chair for COMSOC's Globecom-2006. Prof. Ding was a member of IEEE Signal Processing Society's Technical Committee on Statistical Signal and Array Processing (1994-1998) and a member of Technical Committee on Signal Processing for Communications (1998-2003). He also served on the IEEE Signal Processing Society Technical Committee on Multi-Media Signal Processing (2002-2005).
Professsor Ding has published over 200 refereed research papers. He also coauthored two books: Blind Equalization and Identification (Taylor and Francis, 2001) and Modern Digital and Analog Communication Systems (Oxford University Press, 2009). His major research interests are wireless communications, networking, and signal processing.