W-CDMA配備智慧型天線後之微觀與巨觀分集

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摘 要

本篇論文主要設計一個強健型的多用戶檢測器，使用適應性法則追蹤因特徵波形受到扭曲而衰減的 CDMA信號。首先分析並比較各種不同的線性多用戶檢測器(LMDS)。在實際無線通訊環境下，多重路徑 會使得特徵波形受到扭曲，然而在解調LMDS訊號時，卻使用最初的特徵波形，而導致特性嚴重的衰減 。這種因特徵波形受到干擾影響LMD特性的分析，將在本篇論文中詳細探討。在以下，我們將建議一個 演算法來追蹤特徵波形的干擾，進而設計一個有效的特徵波形來解調訊號。這個適應性處理法則應用子 空間(SUBSPACE)方法及定向器(BEAMFORMER)輸出能量的技術，設計出強健型的線性多用戶檢測器，大大 的提升了原本線性多用戶檢測器的實用性。

關鍵詞 : 特徵波形、CDMA、子空間、MVDR波束

目錄

參考文獻

[1]J.S.THOMPSON,P.M.GRANT AND B.MULGREW,"SMART ANTENNA ARRAYS FOR CDMA SYSTEMS,"IEEE PERS -ONAL COMMUNICATIONS,VOL.3,NO.5,PP. 16-25,OCT.1996.

[2]J.H.WINTERS,"SMART ANTENNA FOR WIRELESS SYSTEM,"IEEE PERSONAL COMMUNICATIONS,VOL.5,NO. 1,PP.23-27, FEB. 1998.

[3]G.TSOULOS,M.BEACH AND J.MCGEEHAN,"WIRELESS PERSONAL COMMUNICATIONS FOR THE 21ST CENTUR -Y: EUROPEAN TECHNOLOGICAL ADVANCES IN ADAPTIVE ANTENNAS,"IEEE COMMUNICATIONS MAGAZINE ,VOL.35,NO.9,PP.102-109,SEPT.1997.

[4]L.C.GODARA,"APPLICATION OF ANTENNA ARRAYS TO MOBILE COMMUNICATIONS.II.BEAM-FORMING AND DIRECTION-OF-ARRIVAL CONSIDERATIONS,"PROCEEDINGS OF THE IEEE,VOL.85 NO.8,AUG.1997, PP. 1195-1245.

[5]B.XU AND T.B.VU,"EFFECTIVE INTERFERENCE CANCELLATION SCHEME BASED ON SMART ANTENNAS," ELECTRONICS LETTERS, VOL. 33, NO. 13, 19 JUNE 1997, PP. 1114-1116.

[6]A.L.BRANDAO, L.B.LOPES,AND D.C.MCLERNON,"BASE STATION MACRO-DIVERSITY COMBINING MERGE CELLS IN MOBILE SYSTEMS,"ELECTRONICS LETTERS,VOL.31,NO.1,5 JAN.1995,PP.12-13.

[7]A.A.ABU-DAYYA AND N.C.BEAULIEU,"PERFORMANCE OF MICRO- AND MACRO-DIVERSITY ON SHADOWED NAKAGAMI FADING CHANNELS," GLOBAL TELECOMMUNICATIONS CONFERENCE,1991,VOL.2, PP.1121- 1124 [8]W.PAPEN,"IMPROVED SOFT HANDOFF AND MACRO-DIVERSITY FOR MOBILE RADIO,"IEEE INTERNATIONA -L CONFERENCE,VOL.3,1995,PP.1828-1833.

[9]G.K.CHAN,"EFFECTS OF SECTORIZATION ON THE SPECTRUM EFFICIENCY OF CELLULAR RADIO SYSTEM -S,"IEEE TRANSACTIONS VEHICULAR TECHNOLOGY,VOL.41,NO.3,AUG.1992,PP. 217-225.

[10]C.C.LEE AND R.STEELE,"EFFECT OF SOFT AND SOFTER HANDOFFS ON CDMA SYSTEM CAPACITY,"IEEE TRANSACTIONS VEHICULAR TECHNOLOGY,VOL.47,NO.3,AUG.1998, PP. 830-841.

[11]S.MUKHERJEE AND D.AVIDOR,"OUTAGE AND BER WITH MICRODIVERSITY AND CORRELATED MACRODIVER -SITY,"IEEE INTERNATIONAL CONFERENCE,VOL.6,2001,PP. 1728 -1732.
[12]A.A.ABU-DAYYA AND N.C.BEAULIEU,"MICRODIVERSITY ON RICIAN FADING CHANNELS,"IEEE TRANSAC -TIONS, VOL.42,NO.6,JUNE 1994,PP. 2258-2267.
[13]B.BORNKAMP,A.KEGEL AND R.PRASAD,"MACRO AND MICRO DIVERSITY IN LAND-MOBILE CELLULAR RAD -IO TELEPHONY NETWORKS WITH DISCONTINUOUS VOICE TRANSMISSION,"1995 FOURTH IEEE INTERNA -TIONAL CONFERENCE,1995,PP.590-594.
[14]R.STEELE,C.C.LEE AND P.GOULD,GSM CDMAONE AND 3G SYSTEMS,CHAPTER 2,JOHN WILEY & SONS, 2001.
[15]T.S.RAPPAPORT,WIRELESS COMMUNICATION:PRINCIPLES & PRACTICE, CHAPTER 3,PRENTICE HALL,1996.
[16]J.FUHL,A.F.MOLISCH,E.BONEKL,"UNIFIED CHANNEL MODEL FOR MOBILE RADIO WITH SMART ANTENNAE, "IEE PROC. RADAR,SONAR NAVIGATION,VOL.145,NO.1, FEBRUARY 1998.
[17]P JUNG,P.W.BASIER AND A.STEIL,"ADVANTAGES OF CDMA AND SPREAD SPECTRUM TECHNIGUES OVER FDMA AND TDMA IN CELLULAR MOBILE RADIO APPLICATIONS,"IEEE TRANSACTIONS VEHICULAR TECHN -OLOGY,VOL.4,PP. 357-364, 1993.