

Yu, Jung-Lang

Professor Fu-Jen Catholic University Department of Electrical Engineering Tel: (O)+886-2-29052102; (H) +886-2-23211649; (Mobile) 0936-215734 E-mail: yujl@ee.fju.edu.tw; yujl@mail.fju.edu.tw

Education

Period	Degree	Institution	Major Field
09/92 - 04/97	Doctor of Philosophy	National Taiwan University	Electrical Engineering
09/86 - 06/88	Master of Science	National Taiwan University	Electrical Engineering
09/82 - 06/86	Bachelor of Science	National Cheng-Kung University	Electrical Engineering

My research interest focuses on :

- 1. MIMO-OFDM Systems
- 2. Space-Time Signal Processing in Communication Systems
- 3. Cooperative Communication and Networking

Channel estimation and equalization are two most important research topics in the OFDM system design. A lot of researchers devote themselves to developing the blind channel estimation. The blind subspace channel estimation is most often applied to OFDM systems. In addition to channel estimation and equalization, adaptive receiver algorithm, carrier frequency offset (CFO) and MIMO systems are also interesting issues deserved to study. In this project, channel estimation and equalization are investigated for SIMO/MIMO OFDM systems in the presence of CFO. We propose a block matrix scheme to enhance the OFDM system. Due to the block Toeplitz structure of channel matrix, the block matrix scheme partitions the received OFDM signal vector into several subvectors which are treated as equivalent sample signals. The block matrix scheme increases the number of sample vectors and thus reduces the perturbation of sample correlation matrix. Both the adaptive receiver algorithm and the equalizer with CFO are designed in this project.

Selected publication

- 1. J.L. Yu and D.Y. Hong, "A Novel Subspace Channel Estimation with Fast Convergence for ZP-OFDM Systems," *IEEE Transactions on Wireless Communications*, Vol. 10, no. 10, pp. 3168-3173, Oct., 2011 (EI,SCI)
- J.L. Yu and Yin-Cheng Lin, "Space-Time Coded MIMO ZP-OFDM Systems: Semi-Blind Channel Estimation and Equalization," *IEEE Trans. Circuit and Systems –I: Regular Papers*, vol. 56, no. 7, pp. 1360-1372, July 2009
- **3.** J.L. Yu, M.F. Lee and C.C. Lin, "Multiuser Receivers for MC-CDMA MIMO Systems with Space-Time Block Codes," *Signal Processing*, Vol. 89, Issue 1, pp. 99-110, Jan., 2009
- J.L. Yu and Yin-Cheng Lin, "Comments on 'Semi-Blind Channel Estimation and Equalization for MIMO Space-Time Coded OFDM'," *IEEE Trans. Circuits and Systems-I: Regular Paper*, vol.55, no. 11, pp.3513-3513, Dec., 2008
- **5.** J.L. Yu and Chia-Hao Chen, "A Low-Complexity Block Linear Smoothing Channel Estimation for SIMO-OFDM Systems without Cyclic Prefix," *IEICE Trans. Communications,* vol. E91-B, no. 4, pp. 1076-1083, April 2008
- **6.** J.L. Yu, "A low-complexity two-stage receivers for Space-Time block Coded CDMA MIMO systems," *Signal Processing*, Vol. 87, Issue 7, pp. 1626-1641, July, 2007

Financial support for Ph.D. students

[Stipend]

1.National Science Council (NSC) Scholarship for Ph.D : up to NT 12,000/mo

2. Ministry of Education Teaching Excellent Project for Ph.D: up to NT 12,000/mo (Teaching assistant, optional) 3. Fu Jen Catholic University International PhD student Scholarship: NT 10,000/mo

[Tuition]

1. The 1st and 2nd year tuition is waived (around NT 220.000).

2. The tuition will be free after the $3^{\rm rd}$ year of Ph.D program