Jenq-Tay (J.T.) Yuan, Ph.D.

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Education

Ph.D. Electrical Engineering, Missouri University of Science and Technology (MUST), U.S.A., formerly the University of Missouri-Rolla, 1991.
M.S. Electrical Engineering, Missouri University of Science and Technology (MUST), U.S.A., formerly the University of Missouri-Rolla, 1986.
B.S. Electronic Engineering, Fu Jen Catholic University, Taiwan, R.O.C., 1981.

Dr. Yuan has devoted much of his research resources to the field of statistical and adaptive signal processing, specifically, in the development of computationally efficient and numerically stable smoothing (or two-sided filtering) algorithms [1] as well as interpolation (or two-sided prediction) algorithms [2] in lattice structures. These developed algorithms not only generalize the extensively used one-sided filtering and one-sided prediction lattice algorithms, but also have potential implications for communication, signal processing, and estimation problems. These developed algorithms can be useful tools for channel equalization and estimation, data compression, coding and restoration of speech and image, and even for narrowband interference suppression in spread spectrum communication systems [3]. The results of [1] and [2] are significant and are therefore cited and briefly discussed in the most widely known textbook *Adaptive Filter Theory* by Simon Haykin (Englewood Cliffs, New Jersey: Prentice-Hall Inc., 2002, 4th ed.) in the adaptive signal processing field. Recently, Dr. Yuan has been invited to make contributions to a book published by Springer, New York, USA [4] in which he contributed to *Chapter 5 – QRD Least-Squares Lattice Algorithms*, pp. 115-145. A summary of the QRD-LSL interpolation algorithms, which not only generalizes the well-known QRD-LSL prediction algorithms but also can be employed to develop the widely known fast recursive least squares (RLS) algorithm, has been presented in [4]. More recently, his research interests has been focused on the performance analysis of blind (unsupervised) adaptive receivers employing multimodulus algorithm (MMA) and the well known constant modulus algorithm (CMA) [5]-[7], as well as the proposed blind carrier phase recovery algorithm for 8-VSB signals [8] and decision-feedback equalizers.

- **Selected Publications**
- [1] **J. –T. Yuan**, and John A. Stuller, "Least Squares Order-Recursive Lattice Smoothers," *IEEE Trans. Signal Processing*, Vol. 43, No.5, May 1995, pp. 1058-1067.
- [2] **J. –T. Yuan**, "QR-Decomposition-Based Least-squares Lattice Interpolators," *IEEE Trans. Signal Processing*, Vol. 48, No.1, January, 2000, pp. 70-79.
- [3] **J. –T. Yuan** and Jenq-Nan Lee, "Narrowband Interference Rejection in DS/CDMA Systems Using Adaptive (QRD-LSL)-Based Nonlinear ACM Interpolators," *IEEE Trans. Vehicular Technology*, Vol. 52, No. 2, March 2003, pp. 374-379.
- [4] **J. –T. Yuan** (invited contributions to Chapter 5 – *QRD Least-Squares Lattice Algorithms*, pp. 115-145) in *QRD-RLS adaptive filtering*, edited by José Antonio Apolinário Jr., Springer, New York, USA, February, 2009, (ISBN: 978-0-387-09733-6).
- [5] **J. –T. Yuan**, Jen-Hung Chao, and Tzu-Chao Lin, "Effect of channel noise on blind equalization and carrier phase recovery of CMA and MMA," *IEEE Trans. Commun.*, Vol. 60, No. 11, Nov. 2012, pp. 3274-3285.
- [6] **J. –T. Yuan** and Tzu-Chao Lin, "Equalization and Carrier Phase Recovery of CMA and MMA in Blind Adaptive Receivers," *IEEE Trans. Signal Processing*, Vol. 58, No.6, June 2010, pp. 3206-3217.
- [7] **J. –T. Yuan** and Kun-Da Tsai, "Analysis of the Multimodulus Blind equalization Algorithm in QAM Communication Systems," *IEEE Trans. Commun.*, Vol. 53, No. 9, September 2005, pp. 1427-1431.
- [8] **J. –T. Yuan** and Yong-Fu Huang, "Blind Carrier Phase Acquisition and Tracking for 8-VSB Signals," *IEEE Trans. Commun.*, Vol. 58, No. 3, March 2010, pp. 769-774.

- **Financial Support for Ph.D. Students**
- [Stipend]
- National Science Council (NSC) Scholarship for Ph.D. students: up to NT 12,000/mo
- Ministry of Education Teaching Excellent Project for Ph.D. students: up to NT 12,000/mo (Teaching assistant)
- Fu Jen Catholic University International PhD student Scholarship: NT 10,000/mo (for four years)

- [Tuition]
- The 1st and 2nd year tuition of the Ph.D. program is waived (around NT 220,000).
- The tuition will be free after the 3rd year of the Ph.D. program.