Chiou, Wen-Lin,

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Education

Ph.D. Mathematics, University of Illinois at Chicago, U.S.A. 1991 B.S. Mathematics, Fu-Jen University , R.O.C. 1984.

My research interest focuses on the nonlinear filtering problem involves the estimation of a stochastic process (called the signal or state process) that cannot be observed directly. Information containing the state is obtained from observations of a related process(called the observation process). The main goal of nonlinear filtering is to find optimal filters, that is, to determine the conditional expectations, or perhaps even the conditional density of the state, given the observation history.

In 1960 and 1961, Kalman and Kalman–Bucy published two historically important mathematical papers, respectively. The celebrated Kalman-Bucy filter today plays a central role in engineering applications, for example in navigational and guidance systems, radar tracking, sonar mapping, and satellite orbit determination. Despite the usefulness of Kalman– Bucy filter, it is not perfect. One of its weaknesses is that it is restricted to linear dynamicalsystems. Another weakness is the Gaussian assumption of initial value. The success of Kalman filtering encouraged many researchers to study the Kalman's results to nonlinear dynamic systems.

Selected publication

- 1. Wen-Lin Chiou and Chih-Ru Hsiao, A new interpretation of the Shapley value, Journal of Nonlinear and Convex Analysis, Volume 14, Number 1, pp1-19, 2013.(SCI) NSC 99-2115-M-030-001
- 2. Yang Jiao, Stephen Yau and Wen-Lin Chiou, Mitter conjecture and structure theorem for six dimensional estimation algebras, International Journal of Control, Vol. 86, No. 1, January 2013, 146–158.(SCI)
- 3. Wen-Lin Chiou and Chih-Ru Hsiao, A Characterization of the Multi-Choice Shapley Value with Partially Consistent Property, Taiwanese Journal of Mathematics, Vol. 14, No 1, pp. 287-318, February, 2010. (SCI)
- 4. W.-L. Chiou, W.-R. Chiueh and Stephen S. T. Yau, Mitter conjecture for low dimensional estimation algebras in nonlinear filtering, International Journal of Control, Vol. 81, No. 11, pp1793-1805, November 2008. (SCI, EI)
- 5. W.-L. Chiou, W.-R. Chiueh and Stephen S. T. Yau , Structure theorem for five dimensional estimation algebras , Systems & Control Letters , Vol. 55, Issue 4, pp275-286, April 2006 . (SCI, EI)

Financial support for Ph.D. students

[Stipend]

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

[Tuition] 1.The 1st and 2nd year tuition is waived (around NT 220.000). 2.The tuition will be free after the 3rd year of Ph.D program