IEEE Princeton/Central JERSEY SECTION
Circuits and Systems Chapter

Presents

Optimal SIR and Interference Distributed Power Control for Wireless Systems

By

Mr. Siamak Sorooshyari

Abstract: Transmitter power control has been shown to be an efficient and effective means for supporting variable-service users in wireless networks. In this presentation, an estimator-based algorithm is proposed for distributed power control. The controller is optimal with respect to the minimization of a cost function consisting of a user's signal-to-interference ratio(SIR) error and the network interference. Assuming sufficiently good estimates, the power control algorithm has the potential of achieving convergence in a few iterations. The main feature of the proposed controller is that it allows users to conserve transmit power while achieving a satisfactory SIR value. The issue of joint minimization of network interference and a user's SIR error is addressed in a distributed manner so as to obtain a desired tradeoff. Subsequently, a constrained transmit-power version of the algorithm is presented, and empirical simulation results are provided comparing the utility of the presented algorithm to a well-established power control technique.

Biography: Siamak Sorooshyari received his B.S. and M.S. degrees in electrical engineering from Rutgers University in 2000 and 2003, respectively. Mr. Sorooshyari's research has been focused in the areas of statistical channel modeling, performance analysis of diversity systems, and power control for wireless networks. His current research is in general areas of error control coding, and resource allocation for wireless networks.

Time: 5:00pm, Thursday, December 9, 2004.
Refreshments will be served at 4:45pm

Place: WINLAB, Busch Campus, Rutgers University, 73 Brett Road, Piscataway.

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