



ECE - Distinguished Lecturer Series
Thursday, Jan 29, Dana Research Center 442, 3-4pm

Stochastic Decoding of LDPC Codes

Prof. Warren Gross

Department of Electrical and Computer Engineering, McGill University

Host: Miriam Leeser

Abstract:

Stochastic decoding is a new approach to iterative decoding of error-correcting codes. Stochastic decoding of practical Low-Density Parity Check (LDPC) codes has recently been shown to be able to provide near-optimal decoding performance with respect to the Sum-Product Algorithm. In this approach, information is represented by the statistics of bit streams, resulting in simple, high-speed hardware implementation of graph-based decoding algorithms. This talk provides a survey of stochastic methods for graph-based iterative decoding and the state-of-the-art in stochastic decoder hardware implementations.

Bio:

Warren J. Gross received the B.A.Sc. degree in electrical engineering from the University of Waterloo, Waterloo, Ontario, Canada, in 1996, and the M.A.Sc. and Ph.D. degrees from the University of Toronto, Toronto, Ontario, Canada, in 1999 and 2003, respectively. Currently, he is an Assistant Professor with the Department of Electrical and Computer Engineering, McGill University, Montreal, Quebec, Canada. During the summers of 2004 and 2005 he was a Visiting Professor at the Université de Bretagne-Sud, Lorient, France. His research interests are in the design and implementation of signal processing systems and custom computer architectures. Dr. Gross served on the Program Committees of the IEEE Workshop on Signal Processing Systems, the IEEE Symposium on Field-Programmable custom Computing Machines and the International Conference on Field-Programmable Logic and Applications. He is a member of the Design and Implementation of Signal Processing Systems Technical Committee of the IEEE Signal Processing Society. He served as the General Chair of the 6th Annual Analog Decoding Workshop. Dr. Gross is a member of the IEEE and a licensed Professional Engineer in the Province of Ontario.

For questions please contact Prof's Nian Sun (nian@ece.neu.edu) or Mehmet Dokmeci (Dokmeci@ece.neu.edu).