



Knowledge to Go Places

**ISTeC and ECE Announce two talks by
Alfred Hero
Depts. EECS, BioMedical Engineering, and Statistics
University of Michigan, Ann Arbor**

Alfred O. Hero III is a Professor at the University of Michigan, Ann Arbor, and is affiliated with the Department of Electrical Engineering and Computer Science, the Department of Biomedical Engineering, and the Department of Statistics. His research has been supported by NIH, NSF, AFOSR, NSA, ARO, ONR, DARPA, and by private industry in the areas of medical imaging, bioinformatics, statistical communications, signal processing, and image processing. Alfred Hero is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and received the 1998 IEEE Signal Processing Society Meritorious Service Award, the 1998 IEEE Signal Processing Society Best Paper Award, and the IEEE Third Millennium Medal.

**ISTeC¹ Distinguished Lecture
Sponsored by ISTeC
and in cooperation with the Department of Electrical and Computer Engineering**

**“Data Mining for Genomics”
Monday, February 24, 2003
3:10pm
Wagar, Room 232**

Abstract

Over the past decade there has been an explosion in the amount of genomic data available to biomedical researchers due to advances in biotechnology. For example, using gene microarray technology, it is now possible to probe a person's gene expression profile over the more than 30,000 genes of the draft human genome. Signals extracted from gene microarray experiments can be linked to genetic factors underlying disease development and aging in a population. This has greatly accelerated the pace of gene discovery. However, the massive scale and experimental variability of genomic data makes extraction of useful genetic information very challenging. We will give an overview of some of these challenges and discuss some recent advances in data mining for genomics.

**Department of Electrical and Computer Engineering Seminar
Sponsored by ISTeC¹**

“Space-Time Coding for Wireless Communication”

Tuesday, February 25, 2003

10:00am

Natural Resources Bldg., Room 115

Abstract

Network security is important for information protection in open, secure, and covert wireless communications. One such requirement is to achieve high rate communications between clients in the network while hiding information about the transmitted symbols, signal activity, or other sensitive data from an eavesdropper. For wireless links, the single user capacity advantages of deployment of multiple antennas at the transmitter is well known. It is reasonable to expect that utilizing space-time diversity at the transmitter can also enhance its information security and data hiding capabilities. In particular, significant gains should be achievable when the channel between transmitter and client is partially known, but the channel between transmitter and eavesdropper is unknown. In this talk we quantify the advantages of space-time communications by investigating capacity limits for an informed transmitter/receiver pair subject to low probability of intercept (LPI) and low probability of detection (LPD) constraints. Our approach gets at the fundamental question: what are the qualitative and quantitative differences between the information carrying capabilities of open space-time channels versus secure space-time channels?

Meetings with Professor Hero: If you wish to meet with the speaker during his two days in Fort Collins, please contact Louis Scharf, scharf@engr.colostate.edu .

¹**ISTeC (Information Science and Technology Center)** is a university-wide organization for promoting, facilitating, and enhancing CSU's research, education, and outreach activities pertaining to the design and innovative application of computer, communication, and information systems. For more information please see ISTeC.Colostate.edu.