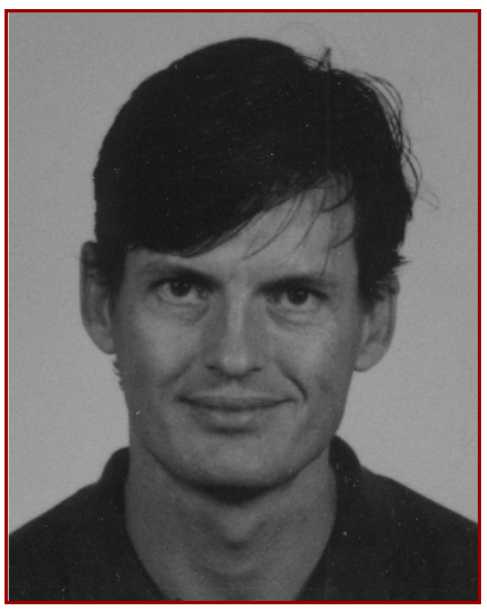
Electrical & Computer ENGINEERING

SEMINAR

THURSDAY
NOVEMBER 17, 2005

Scaife Hall Auditorium
Room 125

4:00 PM
Refreshments—3:30 PM



PIERRE MOULIN
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Pierre Moulin received his doctoral degree in 1990, after which he worked For Bell Communications Research for years. He joined the University of Illinois at Urbana-Champaign in 1996. He is currently Professor in the Department of Electrical and Computer Engineering and Affiliate Professor in the Department of Statistics. His fields of professional interest are information theory, image and video processing, statistical signal processing, compression, and information hiding. He has served on the editorial boards of the IEEE Transactions on Information Theory and the Transactions on Image Processing and is the editor in chief of the upcoming IEEE Transactions on Information Forensics and Security. He is an IEEE fellow, recipient of 1997 and 2002 best paper awards from the IEEE Signal Processing Society, 2003 Associate of the UIUC Center for Advanced Study, and 2005 Sony Faculty Scholar.

STEGANOGRAPHY: ART OR SCIENCE?

Steganography is the art of embedding secret messages into cover data sets (such as images, video, audio files, text, and computer programs). The presence of hidden information should be undetectable to everyone except the intended recipient of the message. Conversely, steganalysis is the art of discovering the presence of hidden data.

Steganography has been used by revolutionaries, spies, the military, and perhaps terrorists. Recently sophisticated methods have been developed for steganalysis, aiming at identifying small changes in statistics in cover data. This has led to a new generation of steganographic techniques that can resist steganalysis. Where does the cat and mouse game stop?

In this talk we'll present some fundamental limits for steganography, by defining ground rules and maximizing rate of reliable transmission subject to a statistical undetectability constraint (analogous to Shannon's notion of perfect secrecy). The applicability of this theory to practical steganographic problems will be discussed.

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For more information:
http://www.ece.cmu.edu/seminar

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