

## Distinguished Lecture Program

**Prof. Dr. Pierre Moulin, Fellow IEEE**

University of Illinois

Beckman Institute

Coordinated Science Laboratory and ECE Department

2.30pm – 4.00pm

Friday October 11, 2013

BM – 1 – 018 College of Engineering

Universiti Tenaga Nasional Putrajaya Campus

### **Robust Hashing and its Applications to Content Identification**

#### **Synopsis**

The need to compress signals (audio, video, etc.) into short bitstrings for the purpose of reliable identification (instead of reconstruction) arises in many modern applications, including management of user-submitted content websites such as YouTube; connected audio, e.g. the Shazam application running on smartphones; and contextual advertising. These short bitstrings are called robust hashes, or fingerprints of the signal. A successful application of content identification requires that different versions of a signal can be matched reliably based on their fingerprints (a property called robustness) whereas unrelated signals yield a negative match (this property is called discriminability). This talk will overview the fundamental decision-theoretic and information theoretic concepts behind these applications and outline practical approaches.

#### **Biography**

Pierre Moulin received his doctoral degree from Washington University in St. Louis in 1990, after which he joined at Bell Communications Research in Morristown, New Jersey, as a Research Scientist. In 1996, he joined the University of Illinois at Urbana-Champaign, where he is currently Professor in the Department of Electrical and Computer Engineering, Research Professor at the Beckman Institute and the Coordinated Science Laboratory, and affiliate professor in the Department of Statistics.

His fields of professional interest include image and video processing, compression, statistical signal processing and modeling, media security, decision theory, and information theory.

Dr. Moulin has served on the editorial boards of the IEEE Transactions on Information Theory, the IEEE Transactions on Image Processing. He currently serves on the editorial boards of the Proceedings of IEEE and of Foundations and Trends in Signal Processing. He was co-founding Editor-in-Chief of the IEEE Transactions on Information Forensics and Security (2005-2008), member of the IEEE Signal Processing Society Board of Governors (2005-2007), and has served IEEE in various other capacities.

He received a 1997 Career award from the National Science Foundation and an IEEE Signal Processing Society 1997 Senior Best Paper award. He is also co-author (with Juan Liu) of a paper that received an IEEE Signal Processing Society 2002 Young Author Best Paper award. In 2003 he became IEEE Fellow and Beckman Associate of UIUC's Center for Advanced Study. In 2007-2009 he was Sony Faculty scholar at UIUC. He was plenary speaker for ICASSP 2006, ICIP 2011, and several other conferences. He is Distinguished Lecturer of the IEEE Signal Processing Society for 2012-2013.