



## Short Course on Data Compression Strategies

This is an *introductory* short course tailored to provide the *fundamentals* of *lossless and lossy* data compression concepts to enable the participants to gain insight into *effective data compression* strategies in order to *use and develop* their own compression methodologies.

### COURSE OBJECTIVE

On the successful completion of this course, the participants should be able to

- explore the characteristics of data for the purposes of compression,
- provide an introductory foundation to typical strategies used in compression of various types of data, including text, numeric, image, video and music, and
- incorporate exposure and skills in combination strategies in data compression, with the purpose of enabling course participants to innovate data compression schemes suitable for a variety of data.

### COURSE OUTLINE

#### 1. Introduction to Data Compression

What is Data Compression, Motivation for Data Compression, Types of Data Compression, Lossy Compression, Lossless Compression, Concept of Models & Coding, Related Issues.

#### 2. Fundamentals of Lossless Data compression & Applications

Suppression Methods, Substitution & Dictionary Methods, Bit Level Methods, Relative Encoding, Statistical Methods, Predictive Coding, Combination Methods, Other Compression Techniques.

#### 3. Fundamentals of Lossy Data compression & Applications

Lossy Compression, Examples of Lossy Compression Algorithms, JPEG, JPEG 2000, Motion JPEG 2000, MPEG, MP3.

#### 4. Measurements for Performance Evaluation

Introduction, Entropy, Compression ratio (CR), Figure of merit, Compression percentage, Mean Squared Error (MSE), Signal to Noise Ratio (SNR), Other Measurements.

#### 5. Hands-on Tutorials (building a data compression strategy)

### TARGET AUDIENCE

Students (undergraduate and postgraduate),  
Academic staff and Researchers,  
Professionals from industries

### VENUE

College of Engineering,  
UNITEN, Putrajaya Campus.

### DATE

November 28 - 29, 2013

### REGISTRATION

Contact: [mypsoc@ieee.org](mailto:mypsoc@ieee.org)  
Deadline: November 21, 2013

### FEES

IEEE Member	RM 700
Non-IEEE Member	RM 800

*Course materials will be provided*  
*Certificate from IEEE Signal Processing Society Malaysia Section*  
*Morning/afternoon refreshments and lunch included*

## SPEAKERS PROFILE

**Prof. Engr. Dr. R.Logeswaran** is the Dean of the School of Engineering, Science and Technology at Nilai University, Malaysia and an Adjunct Associate Professor of Multimedia University (MMU). He gained a B.Eng. (Hons) Computing degree from Imperial College London, United Kingdom, and M.Eng.Sc. (research on data compression) and Ph.D. (Engineering) qualifications from MMU.

Prof. Logeswaran's research interests include Data Compression, Neural Networks, Medical Image Processing and Content-based Image Retrieval. With a total of over 100 publications, he has published a postgraduate thesis, book, several book chapters, and numerous technical papers in international journals and conference proceedings, in data compression. His teaching experience in data compression include conducting a postgraduate course in Korea and many short courses to the industry, engineering professional body and undergraduate students in Malaysia.

Prof. Logeswaran is a Senior Member of the IEEE, an executive committee member of the IEEE Signal Processing Society (Malaysia) and the former Group Leader of the Image and Video Processing special interest group at MMU. He has been a recipient of several international scholarships including those from Brain Gain Malaysia, Brain Korea 21 and Telekom Malaysia, as well as serving as a project leader for national-level grants and consultancy. His accomplishments are mentioned in several international listings, as well as in international and local articles.