



Department of Automatic Control & Systems Engineering
would like to announce the following seminar:

Some Recent Studies on the Construction of Single-Hidden Layer Feedforward Neural Nets

Speaker: Dr. K Li

**School of Electronics, Electrical
Engineering and Computer Science
The Queen's University Belfast**

**Wednesday 31st October 2007
at 14:10**

Location: Henry Stephenson Building LT1

Coffee and Biscuits will be served afterwards.

Abstract: This talk cover some recent studies on the construction of a wide class of single-hidden layer feedforward neural networks (SLFNs) with two sets of adjustable parameters, i.e. the nonlinear parameters in the hidden nodes and the linear output weights. It is a challenging problem if both the parameter training and determination of network size are considered simultaneously. Two alternative construction methods are discussed. Firstly, a discrete construction approach is introduced with the main objective to be selecting a subset of hidden nodes from a pool of candidates with parameters fixed 'a priori'. A generic framework is used to allow efficient forward and backward subset selection. The second approach is the extension of the first by growing network construction without generating a large pool of candidates, and the adjustable parameters are optimized along the network growing process. Here, a new Jacobian matrix is also introduced to allow more accurate approximation of the cost function. The efficacy of the proposed approaches is shown through an analysis of the computational complexity and by presenting simulation results from different examples.