# Seminar Series
# Comp. Sci. Dept.

# Computational Intelligence Techniques in Information Retrieval

**Henry Nyongesa, University of the Western Cape**

**Mar 4th Thursday, 12:30 to 1:30pm**

**Venue – CS 209**

**Abstract -** The volume and variety of information sources available in digital online sources, such as, the Internet presents increasing difficulty with respect to obtaining information that accurately matches user information needs. An information need is a state in which available information is insufficient to satisfy an information demand. Two factors affect the relationship between an information need and the information retrieved from information sources - also known as information retrieval effectiveness. Firstly, information seekers are often not able to formulate an optimal representation of their information need. Secondly, relevance, the measure of the degree to which retrieved information matches the information need is highly subjective between different information seekers. This seminar presentation will present recent research in information needs modelling as an approach for improvement of information retrieval effectiveness in heterogeneous environments. Computational intelligence techniques are applied for interactive reinforcement learning of information need models, in order to improve overall retrieval effectiveness. The approach combines qualitative (subjective) user relevance feedback with quantitative (algorithmic) measures of relevance. Comparative results are given of retrieval effectiveness using conventional relevance feedback against the computational intelligence approach. A discussion of a developing real-world application platform is also given.

**Brief Bio -** Dr Nyongesa received a BSc in Electrical and Electronic Engineering from Aston University (1980), Birmingham England, MSc in Electronics from King's College, University of London (1985) and PhD in Automation and Systems Engineering from the University of Sheffield England (1993). He is professor of computer science at the University of Western Cape and is currently visiting Missouri University of Science and Technology on the University of Missouri South Africa Exchange Programme (UMSAEP). His previous appointments were at Sheffield Hallam University (England), Brunel University (England), University of Sheffield (England) and University of Nairobi (Kenya). His research interests are in application of computational intelligence techniques to the design of adaptive decision support systems, in very diverse applications.