Department of Mathematics, Statistics and Computer Science

St. Francis Xavier University

Presents

A Heaps Chair Lecture

Data Mining of Biological Sequences from Discovery of Complex Patterns

Dr. David Chiu

School of Computer Science

University of Guelph

Monday, September 24th, 2012 @2:15 in Ax23a

With the enormous growth of noisy, unstructured, and complex datasets collected in related multiple databases, data mining techniques can play a very important role in discovering scientific knowledge that is more data-driven and empirically-based from these collected datasets. This talk outlines an approach using statistical, and association analysis in discovering significant patterns from discrete biosequence ensembles, as a multiple-level information network structure. This talk will show how some of these analyses can be used for bioinformatics studies such as inferring properties of the high-dimensional structure or deciphering the functionality of a particular site in a molecule that could be important in cancer suppression or other aspects of life.

Presenter's Bio:
Dr. Chiu is a full professor in the School of Computer Science and a graduate faculty of the Biophysics program and the Bioinformatics program at the University of Guelph, Ontario, Canada. Before joining the University, he worked with NCR Canada Ltd. and VIRTEC (Vision, Intelligence, Robotics Technology) Canada Ltd. on unconstrained character recognition. He was associated with the PAMI (Pattern Analysis and Machine Intelligence) laboratory and an adjunct professor in Systems Design Engineering at the University of Waterloo. With a fellowship from STA (Science and Technology Agency) of Japan, he has conducted research on artificial neural networks at the Electrotechnical Laboratory of Japan (currently National Institute of Advanced Industrial Science and Technology). More recently he has participated in the research of transgenic pig data analysis with the National Network Center of Excellence, Advanced Foods and Materials Network of Canada. He has published more than 100 peer-reviewed articles in the areas of pattern analysis, knowledge discovery and their applications to image analysis, spatial and image databases, machine intelligence, granular computing, bioinformatics and systems biology.

Refreshments will be served before the talk in AX24A