Decision support tools to identify people at risk of cardiovascular arrhythmias

Thursday, November 17, 2011
Time: 3:00pm – 4:00pm
Location: HNES 402

Abstract: Heart rate variability (HRV) refers to variations of instantaneous beat-by-beat heart rate and has become a window to autonomic nervous system control to the heart in normal healthy individuals and in patients with cardiovascular and non-cardiovascular disorders. As found in both clinical studies and animal models, supra-normal sympathetic drive to the heart is arrhythmogenic and life-threatening. Dr Dinca-Panaitescu will discuss various techniques which can provide an indirect measure of the balance between the sympathetic and vagal tone, in this way assessing heart health and identifying people at risk of developing atrial or ventricular arrhythmias. He will describe spectral analysis (e.g. Fourier and ARMA) for HRV, time-frequency algorithms (e.g. Wavelet), a neural network classification algorithm, and contrast this development with other systems in the literature. Dr. Dinca-Panaitescu will focus on the application of the decision tools for healthy individuals and patients with diabetes.

Biography: Dr. Dinca-Panaitescu is currently the Undergraduate Program Director and the Coordinator of the Health Informatics Certificate in the School of Health Policy and Management, Faculty of Health, York University. He has worked for many years in the area of medical/health informatics focusing on computer processing of physiological signals. His major research contributions address the cardiovascular disease prevention field by developing decision support tools aiming at detecting the cardiovascular dysfunction in the sub-clinical phase. He has published numerous articles and one book in this field. More recently Prof. Dinca-Panaitescu’s research focus on applying mathematical modeling techniques to untangle the complex relationship between socio-economical environments and different diseases (e.g. diabetes).