UNIVERSITY OF CALGARY
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Engineering in Medicine and Biology Society
Chapter of the IEEE Southern Alberta Section

Biomedical Engineering Graduate Program

Centre for Bioengineering Research and Education

Invite you to a Seminar on:

COMPUTER-AIDED SYSTEMS FOR BURN ASSESSMENT

BY

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ABSTRACT: A burn injury is the result of an energy transfer that destroys skin and adjacent tissues. For successful evolution of a burn injury, it is essential to initiate the correct first treatment as soon as possible. The first treatment depends on assessment of burn severity. The main factors that determine the severity of burns are burn surface area, depth, and location. As the cost of maintaining a Burn Unit is high, it would be desirable to have an automatic system to give a first assessment in local medical centers or at the site of emergency, where there is a lack of specialists. If a patient with burn wounds arrives at a medical center without a Burn Unit, a telephone communication is established between the local medical center and the closest hospital with a Burn Unit, and the nonexpert doctor describes subjectively the color, shape, and other aspects considered important for burn characterization. In many cases, the result is the application of an incorrect first treatment or unnecessary displacement of the patient, involving high healthcare cost and psychological trauma for the patient. These conditions, together to the fact that a burn patient is usually treated initially in a primary health center, call for the use of a computer-aided diagnosis (CAD) tool in clinical practice. Procedures and systems for CAD have gained acceptance in medicine. However, the extension of the CAD concept to the analysis of color images of skin lesions is developing at a slower pace due to difficulties in translating human color perception into objective rules that may be analyzed by a computer. This seminar will present the state of the art and current research work on CAD tools for burn assessment.

Begoña Acha received her first degree in Telecommunication Engineering from the University of Seville, Spain, in 1996. She received the Ph.D. degree in 2002. Since 1996, she is an assistant professor in the Signal Processing and Communications Department of the University of Seville; from 2009, she is a tenured professor with the same department. Her research is focused on the field of image processing and in particular, on biomedical imaging. She has authored numerous publications in international journals and conference proceedings. She is a coauthor of the book "Color Image Processing with Biomedical Applications," SPIE Press, 2011. She has advised several students on their Ph.D. and Master's theses.

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