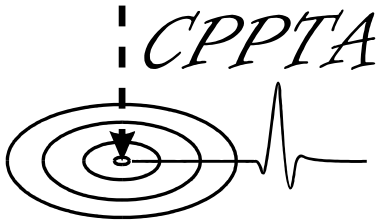

BOOK OF ABSTRACTS

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Automatic digital breast thermography segmentation for breast cancer detection

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One in eight deaths worldwide is due to cancer. Cancer is the second leading cause of death in developed countries and the third leading cause of death in developing countries. In 2009, about 562,340 Americans died of cancer, more than 1,500 people a day. Approximately 1,479,350 new cancer cases were diagnosed in 2009. In the United Sates, cancer is the second most common cause of death, and accounts for nearly 1 of every 4 deaths [1]. The chance of developing invasive breast cancer at some time in a woman's life is about 1 in 8 (12%) [2]. Breast cancer continues to be a significant public health problem in the world. Approximately 182,000 new cases of breast cancer are diagnosed and 46,000 women die of breast cancer each year in the United States [3]. Thus, the incidence and mortality of breast cancer are very high, so much so that breast cancer is the second leading cause of cancer death in women. Although breast thermography has its limitations in sensitivity and specificity and it is dependent on examination conditions, it provides valuable information about the physiological condition of the breasts. Its ability to detect early physiological changes in breasts due to cancer formation can be used to detect patients whom require more thorough examinations, thus making the treatment more effective.

This paper presents an approach for detecting in digital thermography not only the detection and early stage of tumors can also detectable The first step of the cancer signs detection should be a segmentation procedure able to distinguish masses and micro calcifications from background tissue using Morphological operators and finally fuzzy c- means clustering (FCM) algorithm has been implemented for intensity – based segmentation. The implemented algorithm is absolutely capable to identify and subsequently isolate the area of interest taking into account the result of the texture ana-

lysis of the image. The proposed technique shows better results. The method was tested over several images of image databases taken from Digital Database for Screening Mammography (DDSM) for cancer research and diagnosis. Results allow us to see the effectiveness of the proposed method.

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Analysis of thermal imaging for the detection of failures in transmission lines

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The infrared images show the temperature scale based on the previous calibration of the camera thus allowing measuring the temperature over several regions of the test terminal. Despite an accurate contactless temperature measurement can be achieved by a good calibration of the infrared camera, the proposed image processing is not based on this calibration but on the textures defined by the gray levels that naturally arise due to thermal effects. In order to orientate the analysis of the thermal effects to the region of interest (ROI), infrared images of the experimental setup where digitally processed by using segmentation and extraction algorithms based on texture and morphological image analysis [1-4].

These processes, through which the ROI (i.e. region where the partial discharges are induced) is discriminated from the entire environment, allow not only having a calibrated measure of the temperature over several regions of the experimental setup but also accurately extracting the physical location where the failure is occurring.

The results are very promising, as they allow us to identify a fault in a transmission line if you need to have it offline, ie keeping the energized line.

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