

# IEEE CBMS 2015

The 28<sup>th</sup> IEEE International Symposium on Computer-Based Medical Systems

São Carlos and Ribeirão Preto, Brazil  
June 22<sup>nd</sup> – 25<sup>th</sup>, 2015

## Research School Program

CBMS 2015



### Organization



### Sponsors



## Thursday June 25, 2015 – Ribeirão Preto/FMRP

Schedule	Thursday – 25/06/2015
08h00–08h20	Registration
08h20–08h45	
08h45–10h15	Mini-Course Part 1 - “Analysis of Shape, Texture, and Oriented Patterns in Biomedical Images” Rangaraj Rangayyan
10h15–10h40	COFFEE – BREAK
10h40–12h00	Mini-Course Part 2 - “Analysis of Shape, Texture, and Oriented Patterns in Biomedical Images” Rangaraj Rangayyan
12h00–12h15	
12h15–12h40	LUNCH BREAK
12h40–13h30	
13h30–15h00	Invited Talk Marco Gutierrez (Auditorium CEAPS)
15h00–15h30	COFFEE – BREAK
15h30–16h00	POSTER PRESENTATION
16h00–16h15	WOP – CBMS
16h15–17h30	(Auditorium CEAPS)
17h30–18h00	CLOSING CEREMONY

### [08:45–10:15] | [10:40–12:15] Mini-course – “Analysis of Shape, Texture, and Oriented Patterns in Biomedical Images”

Speaker: Rangaraj M. Rangayyan

University of Calgary, Calgary

Professor, Department of Electrical and Computer Engineering

Adjunct Professor, Departments of Surgery and Radiology

This mini-course provides an introduction to the various types of shape, texture, and oriented patterns encountered in biomedical images. Methods to represent and process information related to shapes and contours of objects will be described, including signatures of contours, chain coding, segmentation of contours, polygonal modeling of contours, parabolic modeling of contours, thinning, and skeletonization. Methods to derive shape factors, such as compactness, moments, chord-length statistics, Fourier descriptors, fractional concavity, and speculation index, will be described. Models for the generation of random, ordered, and oriented texture will be described. Methods for statistical and structural analysis of texture, fractal analysis, and analysis of texture in the Fourier domain will be presented. Procedures for directional filtering in the Fourier domain and Gabor filters for the analysis of oriented patterns as well as measures of directional distribution for the analysis of oriented texture will be explained. Several applications will be demonstrated, including analysis of calcifications, masses, asymmetry, and architectural distortion in mammograms, as well as analysis of healing of ligaments via remodeling of collagen and blood vessels.

**Reference:** R. M. Rangayyan, "Biomedical Image Analysis," CRC Press, Boca Raton, FL. 1,306 pages. 2005. ISBN 0-8493-9695-6.

**Lecture Notes:** <http://people.ucalgary.ca/~ranga/enel697/>

## Invited Talk

### **[13:30–15:00] “Advances and Progresses in Hospital Information Systems”**

Speaker: Marco Antonio Gutierrez

Instituto do Coração (InCor) - University of São Paulo, Brazil

[http://www.incor.usp.br/spdweb/pessoas/marco\\_gutierrez.htm](http://www.incor.usp.br/spdweb/pessoas/marco_gutierrez.htm)

*Abstract:* After more than one decade in the 21st century, for the vast majority of patients, a simple consultation, prescription or an exam report is still based on a collection of papers with details of his or her clinical history. This paper based collection of health registers may difficult the exchange of information between actors in the health system may induce errors in the decision process and also may turn the assistance process inefficient. However, this well-known scenario in most of the hospitals can be minimized with the use of Information Technology (IT). The use of IT in the assistance process has the potential to reduce dramatically the number of fails involved in a paper based process and also contribute to the reduction of costs in the Healthcare system. The advances and progresses in hospital information systems (HIS), as a tool to support the assistance processes, have been contributed to change this typical scenario and this talk will cover the principal steps, barriers and strategies in the HIS adoption, as well as its contribution to change the patient care.

### **Poster Presentation – Workshop for Ongoing Projects (WoP) at CBMS 2015**

Chair: Paulo M. Azevedo-Marques

Room: Auditorium CEAPS at Clinical Hospital at Ribeirão Preto of  
University of São Paulo (USP) - 16:00/17:30

#### **Human Centric ICT Support to Young Persons with Mental Disorders**

*Bo Hu, Aisha Naseer*

#### **A Risk Analysis Model for PACS Environments in the Cloud**

*Saulo da Silva Cordeiro, Paulo Mazzoncini de Azevedo-Marques, Fábio Sant' Ana, Kátia Suzuki*

#### **A Reference Architecture for Healthcare Supportive Home Systems**

*Lina María Garcés Rodríguez, Apostolos Ampatzoglou, Paris Avgeriou, Elisa Yumi Nakagawa*

#### **Automatic Pulmonary Abnormality Screening using Thoracic Edge Map**

*K.C. Santosh, Szilard Vajda, Sameer Antani, George Thoma*

#### **Prehospital Eletronic Record with use of Mobile Devices in the SAMU's Ambulances in Ribeirão Preto-Brazil**

*Alexandre Freitas Duarte, Hilton Vicente César, André Luis Mendes Marques, Paulo Mazzoncini de Azevedo-Marques, Gerson Alves Pereira Júnior*

**Designing Medical Interactive Systems via Assessment of Human Mental Workload**

*Luca Longo*

**Technology Enhanced Integration of Hospital and Primary Care in the M'boi Mirim Neighborhood of São Paulo City**

*Alexandre Hannud Abdo, Ana Delgado, Ana Mafra, Tatiane Ocon Nascimento, Mario Bracco*

**Automatic Classification of Cancer Tumors using Image Annotations and Ontologies**

*Edson F. Luque, Daniel L. Rubin, Dilvan A. Moreira*

**Exploiting Evolutionary approaches for Content-Based Medical Image Retrieval**

*Reginaldo Rocha, Priscila T. M. Saito, Pedro H. Bugatti*